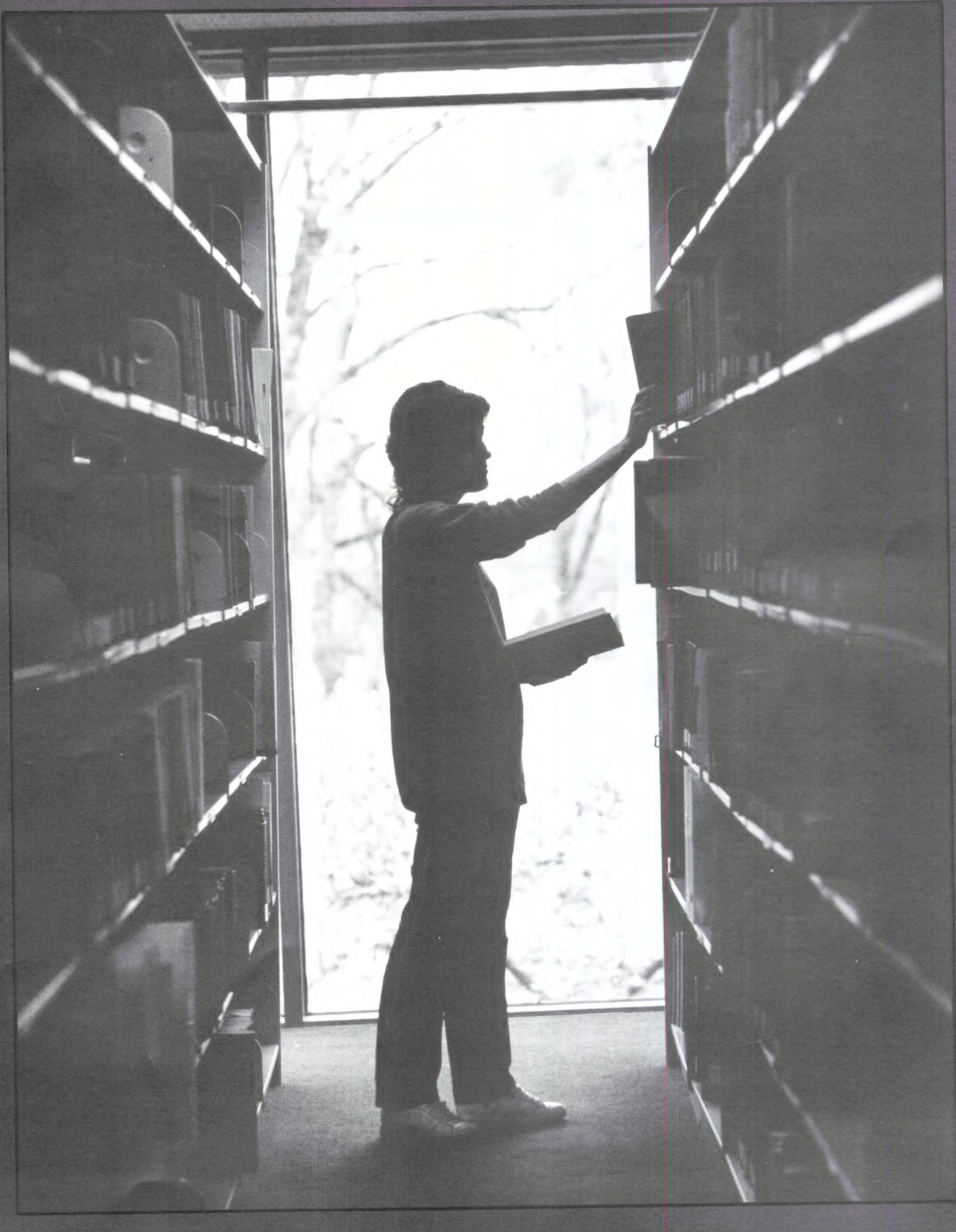
Missouri
Botanical
Garden

Bulletin

QK1
.M593
1989
v.77
c.2



JANUARY /
FEBRUARY
1989

THE HECKMAN BINDERY, INC. N. MANCHESTER, INDIANA

VOLUME LXXVII
NUMBER ONE

SHOUT
SHARE
IT

Inside This Issue

5 **Julian A. Steyermark**
A beloved friend and colleague is remembered.

6 **Gardening at the Garden**
Conifers are defined, and notable Garden specimens are discussed.

7 **St. Louis Award**
Dr. Raven was honored by civic leaders and philanthropists.

8 **Home Gardening**
Even the coldest months offer activities for home gardeners.

9 **Tropicos**
A history and description of the Garden's innovative database system.

10 **Ask the Answer Service**
Solutions to your gardening problems.

12 **Calendar of Events**
Lectures, the Orchid Show, and lots of special activities make winter a delightful season.

14 **From the Membership Office**
Welcome to our 50th anniversary year.

20 **Behind the Scenes**
A new assistant director of the Garden and a new director of horticulture are named.

20 **Tributes**
Friends and family are honored with a gift to the Garden.

On the cover: The Garden library in the John S. Lehmann Building.
—Photo by Pat Watson

© 1989 Missouri Botanical Garden.

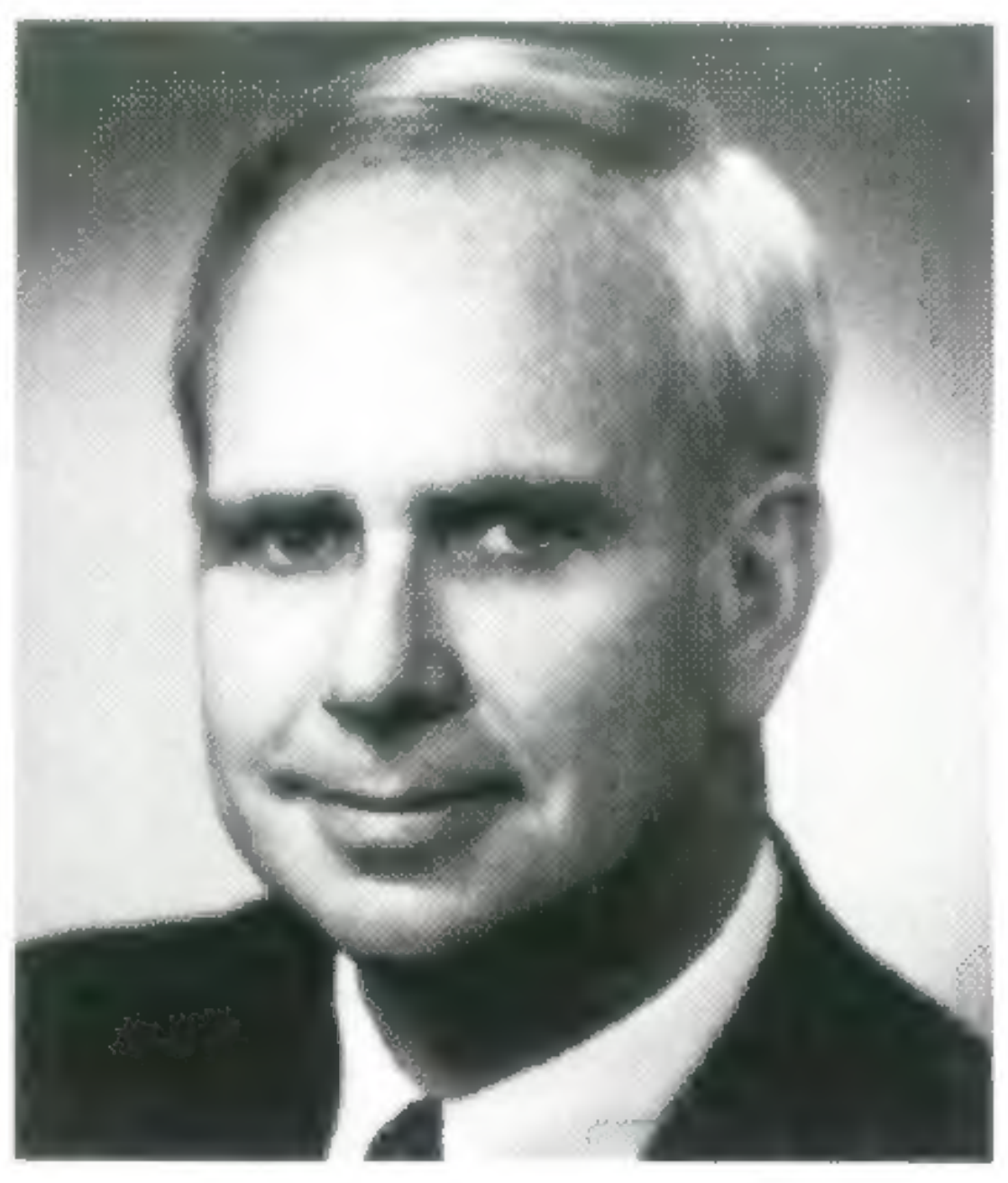
The BULLETIN (ISSN 0026-6507) is published bi-monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, MO 63110. Second class postage paid at St. Louis, MO. Subscription price $12.00 per year. $15.00 foreign.

The BULLETIN is sent to every Member of the Garden as one of the benefits of membership. For a contribution of as little as $40 per year, Members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and for course fees; and the opportunity to travel, domestic and abroad, with other Members. For information, please call (314) 577-5100.

Postmaster: send address changes to Susan Wooleyhan, editor, BULLETIN, P.O. Box 299, St. Louis, MO 63166.

Comment

The Centennial Year



A century ago the responsibility for the care and guidance of the Missouri Botanical Garden was placed in the hands of the Board of Trustees. During this past hundred years, the Garden has flourished and developed into one of the finest institutions of its kind. It has a strong and vital Board providing exceptional leadership, and one of the largest memberships of any botanical garden in the world.

Entering the third year of the capital campaign, an effort which will offer new and renovated facilities at its conclusion, exemplary recognition must be given to the Garden Trustees and Members. Their willingness and eagerness to help guide and support the Garden has been the key to our success thus far. While new challenges lie ahead, it is obvious that the commitment of the Garden's Trustees and Members will make it possible for our long-range plans to become a reality.

1989 also marks 50 years of Garden membership. This anniversary is especially meaningful, as it honors the participation of the St. Louis community in our threefold mission of botanical research, horticultural display, and environmental education. Activities throughout 1989 will focus on the significance of the Garden's past and the plans for its future.

In the first part of the year, the beauty of orchids and spring flowers will transform the Orthwein Floral Display Hall into a magnificent showplace. In February a group of Garden members and friends will depart for Ecuador to explore one of the most spectacular regions of the world and to learn about the Garden's research in that country.

The remainder of the centennial year will feature the second Fragrance Festival, a centennial trip to England (with a special emphasis on the Chatsworth area, which served as Henry Shaw's inspiration for his own Garden) and our traditional Japanese Festival. On September 9, the Trustees and Members' Board will host a Centennial Celebration Benefit.

1989 should prove to be a banner year as we work to complete our capital campaign and celebrate the vision of the next hundred years. Our past accomplishments have been many, and our future successes will be built upon the continued guidance, leadership and cooperation of the Trustees, Members and staff. This combination has proven to be especially powerful and will shape the future of this institution during the next century.

My best to everyone in the new year.

Peter H. Raven

CENTENNIAL
Board of Trustees
1889 1989
Missouri Botanical Garden

1939 *50* 1989
Years of Membership
Missouri Botanical Garden

***WATCH FOR THESE** logos throughout 1989 to herald the Garden's celebration of these important milestones.*

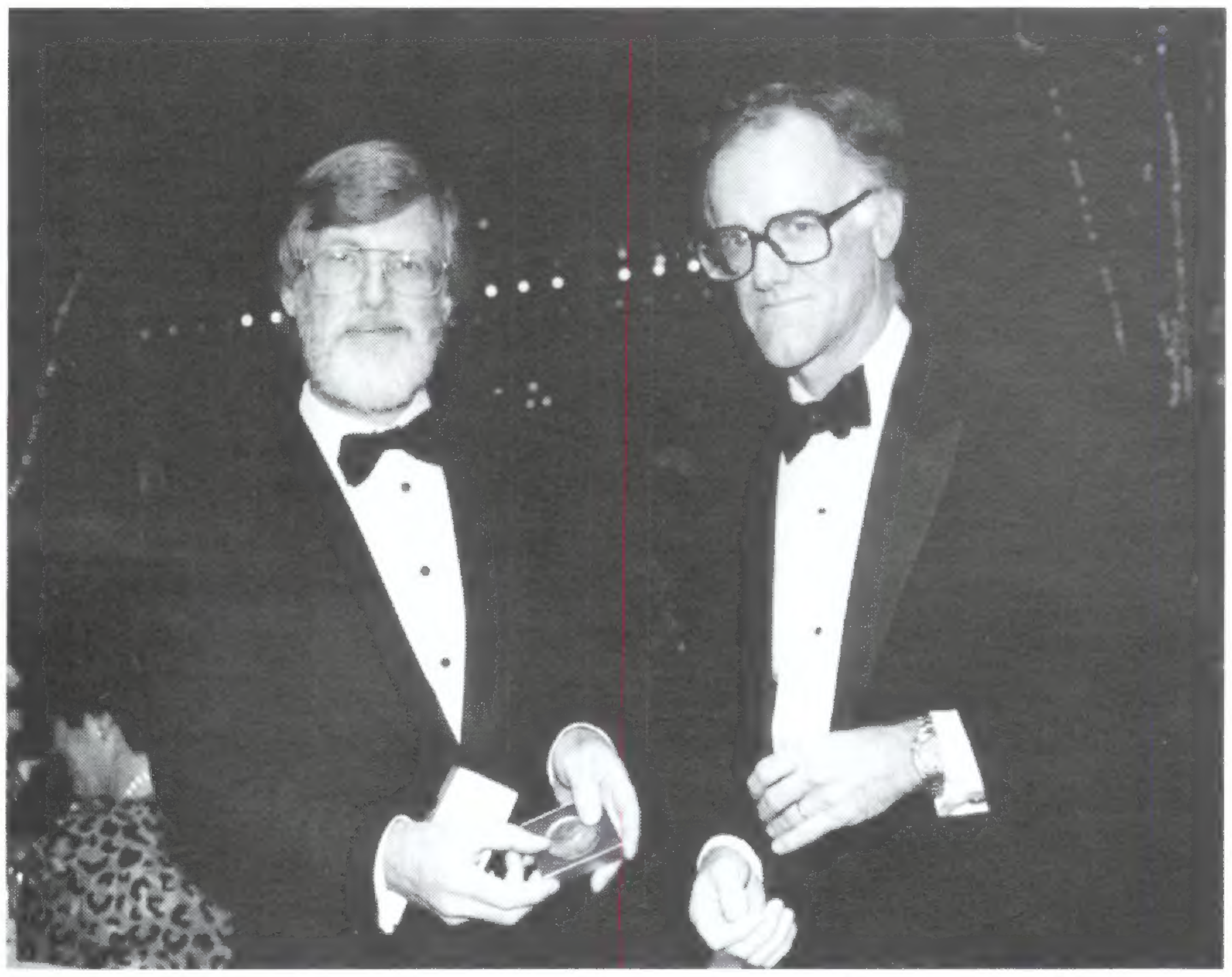
1988 HENRY SHAW MEDAL

Ghillean Tolmie Prance, B.A., M.A., D. Phil.

The Garden Fellows and Henry Shaw Associates, leading supporters of the Garden, awarded the Henry Shaw Medal to Professor Ghillean T. Prance at their annual dinner on November 17 at the Ridgway Center. The Henry Shaw Medal has been awarded intermittently since 1893. It honors individuals who have made significant contributions to the Missouri Botanical Garden, botanical research, horticulture, conservation, or the museum community.

Professor Prance was recognized for his distinguished studies in systematics, tropical ecology, and economic botany. As the new director of the Royal Botanic Gardens, Kew, Prance is committed to providing leadership in searching for solutions to world-wide environmental crises. In a time when the future of our world depends upon current wisdom and clarity of vision, Professor Prance is a leader in the effort to preserve the world's ecosystems and to protect our diminishing natural resources.

Prance received his doctorate in botany at Keble College, Oxford. After joining The New York Botanical Garden in 1963 as a research assistant, he went on to become the B.A. Krukoff Curator of Amazonian Botany; director, then vice president of research; and finally senior vice president. In 1981 Prance began development of the organization's Institute of Economic Botany, and he served as its first director. A prolific writer, he has published seven books and monographs, 130 scientific papers and 45 of a general nature. Prance has spent many years working in the Brazilian Amazon. He has collected more than 30,000 species of plants from the area, including 300 new species, 50 of which were named after him.



Professor Prance (left) receives the Henry Shaw Medal from John H. Biggs, president of the Board of Trustees.

The following is the text of the speech Professor Prance delivered at the Henry Shaw Dinner.

I AM of course deeply honoured personally to have received the Henry Shaw Medal, but I also take it as a further sign of the long-standing collaboration between Missouri Botanical Garden and the Royal Botanic Gardens, Kew, and as an acknowledgement of the importance of the work which we are doing to address the current ecological crisis that the world is facing. I thank you for this honour which bears the name of the founding father of your great garden.

I believe I am the fifth director of Kew to visit Missouri Botanical Garden; the first being Joseph Dalton Hooker in 1877, following the long correspondence between his father, William Jackson Hooker, the first official director of Kew, and Henry Shaw. Shaw wrote to William Hooker in 1856 for advice on how to found a public botanical garden. Hooker put Shaw in touch with Asa Gray and George J. Englemann and the trio continued to advise him until long after the garden was opened to the public in 1859. Hooker was most impressed by the difference between European government-sponsored botanical gardens and one that was founded by the vision of a private citizen that, as Hooker said, "is the gift of a public-spirited private gentleman.... Such a gift to one's country, anyone may glory in." However, I do not intend to dwell on history tonight, but rather to look at the present and the future of great botanical gardens of the world which we represent.

Another reason for my pleasure at receiving this award is that one of the previous recipients was Dr. B. A. Krukoff, the Amazonian plant explorer and philanthropist of botany. Dr. Krukoff has linked our two gardens and The New York Botanical Garden together through his endowment of curatorships at each garden. As the first holder of the B. A. Krukoff Curatorship of Amazonian Botany at New York, I am delighted to be following in his footsteps here since he was a person who did great things for tropical botany.

Our gardens are great and have a worldwide reputation because they are more than local city gardens. They have beautiful horticultural displays for the local publics to enjoy, but these are also a botanical collection from all over the world that we need for science and education, the two activities that make our gardens more than city parks. It may sometimes seem hard for you to understand why botanists from St. Louis, London, New York and many other northern cities are spending so much time in other parts of the world, especially the tropics. However, today the mission of our taxonomists who collect, classify into evolutionary sequence and name the plants of the world has become of even greater importance. Gardens such as ours with large herbaria, libraries and teams of taxonomists provide the basis for all other plant studies and plant uses. It is not possible to recollect a potential drug plant in the Amazon if it has not been identified and deposited in an herbarium. For a little more than the first centuries of existence of our gardens, our botanists and horticulturalists collected the plants of the world, motivated by a thirst for new knowledge and a desire to learn how evolution and

continued on next page

WE ARE FACED with the greatest loss of species that the world has ever experienced. There will only be hope if gardens such as ours continue to accelerate our work.

ecosystems functioned. Today we are faced with an entirely different situation, an ecological crisis of such dimensions that have never before been faced in the course of human history. There are few types of institutions that have the data to make a rational case for the future and can help to resolve the crisis, and one of these is botanical gardens. They are the repository of much of the information about plants, the organisms upon which all life depends because of their primary role in the energy chain through the process of photosynthesis. Today's gardens cannot just collect plants to rescue them from pending extinction. They must target their scientific efforts to provide data for conservation and the rational, sustainable use of plants in managed ecosystems, as well as preserving individual species from extinction.

A few years ago, proponents of tropical rainforest conservation such as Peter Raven were chided for even suggesting that fifty thousand square kilometers of tropical rainforest are cut down each year. However, due to improved remote sensing techniques with satellite data, we know that for the past two years, 50,000 square kilometers is a gross underestimate. In Brazil in the last two years, at least 80,000 square kilometers of primary rainforest were cut and burned. In 1987, a total of 204,000 square kilometers of Brazil was seen to be burning, some of it primary forest and some reburning of already cleared areas, and in 1988, the figure was 248,000 square kilometers. On August 27, 1987, a satellite passing over southern Amazonian Brazil picked up 6,803 individual points of fire and the photos show a huge plume of smoke rising up into the upper atmosphere. The rate of deforestation in Brazil alone is now 37 acres a minute (15 hectares). An area the size of Missouri Botanical Garden disappears every two minutes. And deforestation is by no means confined to Brazil. A recent report by Norman Myers showed that Indonesia is cutting nine thousand square kilometers a year. There is no doubt that deforestation has reached unprecedented rates, meaning that species extinction is increasing rapidly and that more and more land on poor tropical soils is becoming useless and unproductive.

There is, however, some hope. In an emotional television address to the nation on October 12, 1988, President Sarney of Brazil said that the satellite pictures of fires in Amazonia was the red light that had warned him. In his first speech on the environment, the President announced sweeping measures to slow destruction of the Amazon forest such as the end of tax incentives to projects that cause deforestation and severe limitations on cattle raising projects. This is the result of national and international pressure from individuals and environmental groups, as well as from international lending institutions that were reluctant to give new loans to Brazil until it improved its environmental record. Our actions, both scientific and as individuals, can make a difference.

Even if we were not concerned by the loss of tropical species, all citizens of the world should be concerned about tropical rainforest loss because it is having an influence on the whole biosphere. The greenhouse effect is no longer an unproven hypothesis, it is a fact. The New Scientist of 12th November read "The greenhouse effect is no longer controversial.... Most climatologists believe that the overall rise in temperature will be about three degrees centigrade in the next 50 years." World climate is undergoing a gradual increase in temperature because of the increase in carbon dioxide, methane and other gases that affect the penetration of light to the Earth. Worldwide climate patterns are shifting and sea levels are slowly rising. This is caused by two main factors: the burning of fossil fuel and the deforestation and burning of tropical rainforest. Drought in the midwest is not just a chance occurrence; it is something predicted by the climate changes of the greenhouse effect. It is, therefore, in the interest of us all to stem the cutting of tropical rainforest, to work ardently towards the conservation of energy to reduce fossil fuel use, and to seek alternative sources of energy from the sun, wind, water and tide.

Never before has the inventory program of botanic gardens become so urgent. We are faced with the greatest loss of species that the world has ever experienced. Yet it is also the time when there has been a tendency to reduce centers of plants systematics. We need more, not less tropical taxonomists today, and three institutions that are giving a lead by maintaining their active tropical research programs are Missouri Botanical Garden, the Royal Botanic Gardens, Kew, and The New York Botanical Garden. In order to respond to the crisis, we must know what species the forests contain and how they are distributed. Only systematists can do this work and it is of the utmost importance that we maintain and increase our taxonomic workforce in the tropics.

If there is to be any future for tropical rainforests and for the half of the world's species which they harbor, it will be through a balance between conservation of natural ecosystems and rational, sustainable utilization of other areas. Botanists have a major role to play in both conservation and utilization programs for the tropics. The basic catalog of the species is essential to both fields but we must do more than just catalog. We must use our data as evidence for conservation and we must encourage active programs in economic botany, the study of useful plants, which is obviously an important subject in the home institution of Edgar Anderson, one of the earlier pioneers of this field.

The incorporation of the 3.5 millionth specimen into the herbarium of Missouri Botanical Garden on July 8th, 1988, means that your institution ranks among the most important in the world. I am sure that, as a board, you worry about where to put all these specimens, but the job is still not complete! I urge you to continue to give the highest priority to the botanical inventory of the tropics. There will only be hope for many of the plant species of the world if gardens such as ours continue to accelerate our work in plant collecting and conservation. The effect will be much greater the more we pool our efforts and co-ordinate what we are doing. I therefore value the opportunity that this occasion has given to talk to your director and scientists about the many ways in which we can work together.

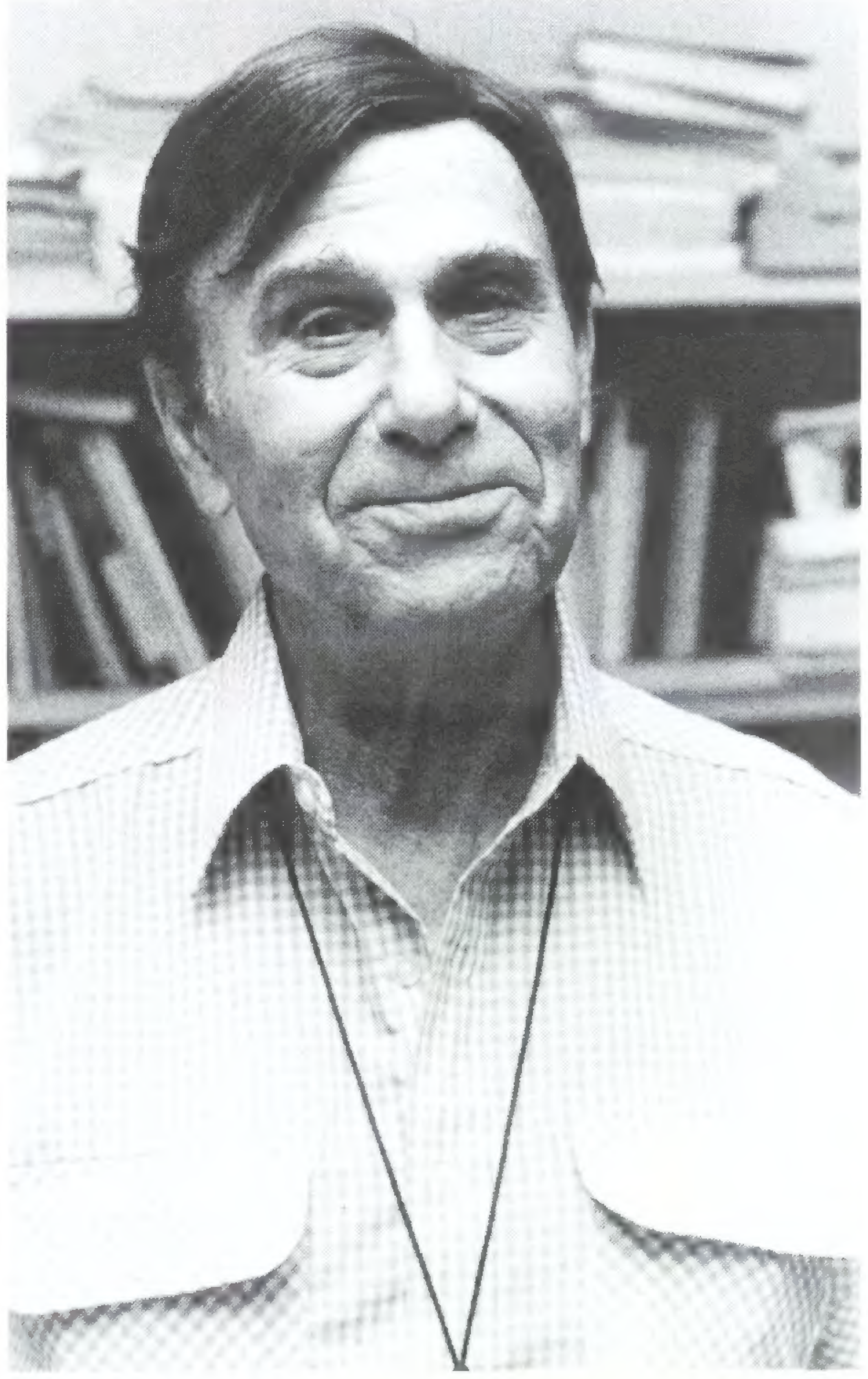
—Ghillean T. Prance

IN MEMORIAM / *Julian Alfred Steyermark,* 1909-1988

By George Yatskievych and Luther J. Raechal

Members and friends of the Garden were saddened by the death of Dr. Julian Steyermark on Saturday, October 15, 1988. Steyermark was one of the Garden's best known research botanists, famous locally and around the world for his botanical collections and publications, and for his strong support for conservation of the environment.

Born in St. Louis on January 27, 1909, Julian Alfred Steyermark enrolled in 1925 in the Henry Shaw School of Botany, a cooperative program between the Garden and Washington University, where he received A.B. (1929), M.S. (1930), and Ph. D. (1933) degrees. He also earned a M.A. degree (1931) from Harvard University. During his early years at the Garden, Julian indulged his other great love, painting watercolors of native flora and plants in the Garden's orchid collection. At that time he began collecting herbarium specimens in Missouri and other states, and by graduation in 1933 he had already surpassed the quantity most botanists collect in a lifetime.



132,223 is the last number in Julian Steyermark's collecting book. He described more than 1,000 new species of plants during his career.

After college, Steyermark assisted Robert Woodson, a research botanist at the Garden. This led to his first tropical expedition, a collecting trip to Panama in 1934. He then taught high school in the St. Louis area for two years before moving to the Field Museum of Natural History in Chicago as an Assistant Curator. For the next 21 years Steyermark worked on the *Flora of Guatemala* and other tropical projects during the week, but continued his Missouri studies in his spare time. A revealing and delightful look at those weekend expeditions from Chicago to the wilds of Missouri was provided by his wife, Cora, in her book, *Behind the Scenes*, published by the Garden in 1984 (and still available in the Garden Gate Shop). These efforts culminated in the massive *Flora of Missouri* (1963). This widely acclaimed manual is often referred to as the state's "botanical bible" and has sold out six printings.

During World War II, Steyermark was sent to South America as part of the government's program to locate new botanical sources for quinine. At that time he first visited the Venezuelan Guayana region, which he lovingly referred to as "The Lost World." (See the *Bulletin*, November/December 1986 and July/August 1987.) His interest in this picturesque area was so great that in 1958 he left the Field Museum to take a position at Instituto Botánico in Caracas, Venezuela. In 1984, Julian returned to the Missouri Botanical Garden, where he strove to complete his last major project, a flora of the more than 9000 plant species in Venezuelan Guayana. This task remains for his friends and colleagues to complete.

Bruce Holst, project coordinator for the *Flora of Venezuelan Guayana*, said, "It was a real thrill and a tremendous learning experience to work in the field with Julian. He really had an 'eagle eye' for spotting plants, and if you didn't see something that he did, he would let you know it . . . Field work was very special for Julian. He never took any 'vacation,' he went on field trips instead. He was just *so* excited about collecting plants, it was impossible not to be caught up by his enthusiasm. He always likened collecting to a 'treasure hunt'! Even with his two artificial hips, he would plow through brush, crawl over and under logs, fall down, laugh about it and push on . . . "

Steyermark received numerous honors during his eventful life, including awards and citations from the governments of Guatemala and Venezuela, and the Garden's Henry Shaw Medal in 1979 (see page 3). That same year, the Ozark Chapter of the Sierra Club awarded him a special citation for his conservation efforts, and the Missouri Department of Conservation named the 73-acre Julian A. Steyermark Woods, near Hannibal, in his honor.

To commemorate Steyermark's achievements, the Garden has established a fund to promote botanical research and expeditions in Latin America, particularly in the Venezuelan Guayana region, and to support research on the natural history of Missouri. In addition, the Missouri Department of Conservation and the Garden are revising Julian's best-known book, which will be retitled *Steyermark's Flora of Missouri*, a lasting memorial to a giant among botanists.

A memorial service was held for Julian Steyermark at the Garden on October 25, 1988. In the eulogy, Dr. Raven said, ". . . His last work will be completed here, and will stand as a final testament to his industry and to his scholarship. As for any human being, however, what will prove to be even more important to all of us will be our memories, for Julian Steyermark was an inspirational person, one who projected his own values without trumpeting them, and thereby enriched all our lives, as he did the literature of botany."

—George Yatskievych heads the Garden's joint project with the Missouri Department of Conservation to revise *Steyermark's Flora of Missouri.*

—Luther Raechal assisted Dr. Steyermark on the *Flora of the Venezuelan Guayana* and is continuing his work on the staff of this ongoing project.

Gardening at the Garden

Conifers

Japanese white pines growing wild on an island in Lake Towada, Hondo, Japan.
(Photo by E.H. Wilson, 1914.)

Before presenting a selection of the conifers at the Garden, it may help to explain what conifers are. The main point to understand is that, while flowers and cones both form seeds, the cones of conifers are very different from flowers, which conifers do not have. In fact, conifers represent an evolutionary lineage more than twice as old as that of plants with flowers.

Flower parts are generally interpreted as having evolved from leafy structures. For instance, modified leaves known as carpels enclose the seeds-to-be in a flower and are transformed into the seed-bearing fruit. Each scale of a cone is, by contrast, derived from a branch, and the seeds are borne on the upper surfaces of scales rather than being enclosed in carpels.

You can observe for yourself the branchy nature of cone scales. Most branches in the plant world arise immediately above a leaf or above the spot where a leaf was once attached, and in some conifers such leaves (called bracts) appear beneath each cone scale, although the bracts are generally tiny and more or less fused with the scales. The best example of a conifer with conspicuous bracts is the Douglas fir *(Pseudotsuga menziesii)*, a species on display at the south end of the Azalea-Rhododendron Garden.

The Garden possesses dozens of species and cultivars of conifers from around the world; comments on a select few follow.

The **Serbian spruce** *(Picea omorika)* is restricted in the wild to a few stands in the mountains along the upper Drina River in Yugoslavia. These stands are believed to represent relicts from a formerly broad range that was nearly obliterated by the last Ice Age. The species offers two horticultural benefits: its upturned branches with dangling branchlets are eye-catchingly exotic, and it tolerates alkaline soils, which is not a general feature of conifers. See several gorgeous specimens just west of the Ridgway Center. The Serbian spruce has an odd connection to the Missouri Botanical Garden. Its discoverer (in 1876), the Yugoslavian botanist Dr. Josef Pančić, was an ancestor-in-law of Sally Nikolajevich, who performs design and graphic work for the Garden today.

Additional spruces at the Garden that you may not want to miss include the **Norway spruce** *(Picea abies)* flanking the Lehmann Rose Garden on both sides. One of the most popular cultivated conifers, the Norway spruce is easy to spot since the branchlets usually dangle, and the cones are large for a spruce, up to about six inches long. Best viewed in the snow and truly blue, the **Colorado blue spruce** *(Picea pungens)* is found south of the Woodland Garden. See if you can find the exceedingly crinkly scales on the cones of this species. Named for the Garden's first botanist, George Engelmann, the **Engelmann spruce** *(Picea engelmannii)* is taking root on the hill at the northeast corner of the Japanese Garden.

Including **yews** (species and cultivars of the genus *Taxus*) in an article on conifers may be a bit of a taxonomic stretcher, because the relationship between yews and more mainstream conifers is unsettled. Yew can see why—species of *Taxus* form bright red seed-bearing structures that look like (and are dispersed by birds like) berries rather than forming cones. Each yew "berry" consists of a seed surrounded by the red, fleshy coating known as an aril. Watch out. The seed within that tempting aril contains lethal "taxine alkaloids." The leaves are treacherous, too, and sometimes kill livestock. As with many poisonous plants, the other side of the coin is therapeutic value, such as the anticancer drug taxol and the blood pressure drug ephedrine, both derived from yews. And to go back in time, the tough, springy wood served for making bows in the Middle Ages. See yews throughout the Garden.

Historically, the favorite tree of north woods lumberjacks east of the Rockies was the **white pine** *(Pinus strobus)*, which extends as far south in the U.S. as Georgia in the Appalachians and jumps some 1,500 miles to reappear in Mexico. Vast forests of white pines fueled the lumber and construction industries in the 19th century (and through that route fueled the Chicago Fire in 1871). The species is readily recognized by its five (remember five letters in w-h-i-t-e) soft, light-colored needles; long curved, non-bristly cones; and irregular silhouettes. The species remains common in the wild and in cultivation now, but it is difficult to find the once-commonplace giant white pines, up to 200 feet tall with trunks over 10 feet in diameter. The few remaining such stands have become tourist attractions. See white pines just north of the Tram Shelter and south of the rear of the Lehmann Building.

A similar species at the Garden (several in the Japanese Garden) is the **Japanese white pine** *(Pinus parviflora)*, which differs most conspicuously from the American white pine by having shorter, twisted needles, shorter cones, and fuzzy twigs. With a very large number of cultivars, the Japanese white pine is gaining popularity as a slow-growing, delicate, small-statured pine, although a tendency to cling to old, blackened cones could be regarded as unattractive.

There are too many additional pines at the Garden to mention each now, but you will probably encounter here and there around the grounds and around town a pine with long, paired needles, dark grayish bark, and bristly cones. This is the **Austrian pine** *(Pinus nigra)*, a European species used extensively in landscaping. The sizable Austrian pine south of the Desert House is the only evergreen conifer at the Garden to have survived the air pollution in the days when coal was the chief fuel in St. Louis.

Well represented at the Garden and with a natural distribution reminiscent of the white pine, across the north and extending southward in the Appalachians, is the **hemlock** *(Tsuga canadensis)*. Find numerous hemlocks between the Lehmann Rose Garden and Tower Grove House, then examine the distinctive twigs: tiny cones dangle from the tips, and miniature needles on slender stalks lie along the twigs upside down with the two white bands on their undersides conspicuously flipped over for easy viewing. Our hemlocks have nothing to do with the poison hemlock that killed Socrates, which is a flowering herb related to carrots. Hemlocks, the conifers, have had a more benign role in human affairs, once having been sources of tannins for curing leather.

The **golden larch** (*Pseudolarix kaempferi*, formerly known as *Pseudolarix amabilis*), a species from eastern China, was presented to the Garden by the Federated Garden Clubs in a ceremony on May 22, 1953. Their choice of species, it is said, was influenced by interest in the golden larch stirred up when a Mrs. McClure wore a sprig from a tree in her yard to a social function at the Garden. The source of the curious corsage was identified as the rare golden larch, and the Garden's specimen, just north of the Museum Building, was transplanted there as a seedling from under Mrs. McClure's trees. How did a rare oriental species come to inhibit a suburban St. Louis lawn? The property was once owned by the James Blair family, of which Mrs. Blair was the official hostess at the 1904 World's Fair. Evidently the trees that gave us both Mrs. McClure's fateful corsage and the golden larch now at the Garden were gifts from Mrs. Blair's cosmopolitan World's Fair visitors.

—George Rogers, Ph.D.

At the Award ceremony (left to right): Gene McNary, Vincent C. Schoemehl, Peter H. Raven, William H. Danforth.

RAVEN RECEIVES ST. LOUIS AWARD

Peter H. Raven, director of the Garden, was honored with the 1988 St. Louis Award in a ceremony on November 28 in Shoenberg Auditorium. Raven was recognized for the honor he has brought to St. Louis through his internationally recognized achievements in botanical research, education, and conservation. He also was honored for his leadership in developing the Garden into a world-renowned center for research in tropical botany and a magnificent community resource for education and horticultural display. The award citation mentioned, in part, "...his influence that extends far beyond the confines of his own discipline and profession, inspiring excellence and progress in every arena of cultural, educational and civic affairs."

The award was presented by William H. Danforth, chancellor of Washington University, Garden Trustee, and chairman of the St. Louis Award committee. The St. Louis Award was established anonymously in 1931 to honor "the resident of metropolitan St. Louis who has contributed the most outstanding service for its development or... shall have performed such services as to bring greatest honor to the community." The donor was later recognized after his death in 1960 as David P. Wohl, a leading St. Louis philanthropist, who himself was recognized for his high standards in service to the entire community.

In his remarks at the Award ceremony, Dr. Raven said, "It is very special to be recognized by the people of your own community—the place where you live—home... You who support the Garden, as your parents and grandparents did before you, should be very proud of what you have made possible, and should understand clearly the unique opportunity that this institution represents.

"At the Missouri Botanical Garden, this great institution founded by Henry Shaw in the years just before the Civil War, we work to enrich our own lives and those of our many visitors. In addition, we are dedicated to learning about the plants of the world as rapidly and efficiently as possible, and to saving them for the future. We live in a time of unique opportunity; there will never be as many kinds of plants in existence again as there are right now. It is because of the importance of these plants for ourselves, and for people in the future, that we display them, teach about them, and study them. Our scientists work throughout the world, contributing to knowledge and building the kinds of relationships with the people of other countries that will be of central importance in the future. Everywhere they work and study, they are known as emissaries of St. Louis, friends who have come from abroad to help and to collaborate in building institutions and education for the future."

The St. Louis Award has recognized many outstanding St. Louisans, including Garden Trustees William E. Maritz and Vincent C. Schoemehl (1985); Robert R. Hermann (1981); Howard F. Baer (1969); and Daniel L. Schlafly (1960). The award includes a check for $1,500, to be given to an organization of the recipient's choice. Dr. Raven designated his gift for the Campaign for the Garden, the Garden's capital fund drive.

Members of the St. Louis Award committee are: W. L. Hadley Griffin, William H. Danforth, Robert Brookings Smith, Elliot H. Stein, Leon R. Strauss, Mrs. Lee M. Liberman, Mrs. Monte C. Throdahl and H. Edwin Trusheim.

H·O·M·E GARDENING

THE WINTER LANDSCAPE

The austerity of winter brings a new beauty to the Garden. These cold months are a fine time to stroll through the grounds and notice handsome plants that enliven the bare landscape with color, shape and texture. In addition to evergreens and conifers (see "Gardening at the Garden," page 6), look for trees with attractive bark, including paperback maple *(Acer griseum)*, sycamore *(Platanus occidentalis)*, persimmon *(Diospyros virginiana)*, hackberry and sugarberry (*Celtis* species), white ash *(Fraxinus americana)*, and Chinese elm *(Ulmus parvifolia)*. On a snowy day, the red stems of Tartarian dogwood *(Cornus alba)* or the yellow stems of *Cornus stolonifera var. flaviramea* will show to best advantage. Not to be missed are the lovely yellow flowers of Ozark witch hazel, which blooms in February near the south end of the Jenkins Daylily Garden. All are excellent subjects for Missouri gardens.

RECORD KEEPING

Regardless of whether you keep extensive records or just jotted notes, use a garden diary to keep weekly or monthly notes about what is in bloom in your own garden and around town. Such records are invaluable in identifying areas of your garden where you don't have as much color at certain seasons as you would like. Record effective combinations of plants you would like to try, too.

Jot down a reminder to give a piece of a favorite perennial to a friend the next time you divide, or to order a particular plant when the winter onslaught of catalogs is upon you. Keep track of cultural practices, such as fertilizing and pruning, plus new tips you'd like to try. Sketched garden plans can help keep track of bulbs and other dormant plants that can easily be dug up and disturbed by accident.

The Garden Diary, available in the Garden Gate Shop, includes space for three years' worth of brief notes as well as a host of tips especially for Midwest gardens. Notebooks with pockets are especially useful for keeping care labels, receipts, copies of orders, and clippings.

LIGHT AND THE INDOOR GARDEN

Indoor gardens are a primary focus for many of us this time of year. Although plants don't die the minute they are placed in a too-dark window, without adequate light they gradually starve. Such plants slowly lose leaves, produce ever-smaller new ones, and eventually become spindly and unattractive.

Matching the house plants you grow to the amount of light naturally available in your home is one simple key to success. North-facing windows receive the least light, south the most. East and west windows receive roughly the same amounts, although west windows tend to be hotter than east. Glass cuts down on the light transmitted, even when sparkling clean. Windows shaded by trees, nearby buildings, porch roofs or awnings will receive considerably less light; curtains, even sheer ones, can effectively turn a west window into a "north" one.

Do not over-estimate the amount of light you have available. As a general rule, allow for more than the minimum. If you have an unusually dark corner, consider purchasing two identical plants and rotating them between the dark spot and a bright window on a weekly basis. Surprisingly, both plants should thrive, especially if you select specimens that are able to grow with little light in the first place.

The amount of light available to plants diminishes quite rapidly with distance from the window. Place plants as close to the window as possible without allowing them to touch the glass. Dust on foliage will also cut down on the amount of light a plant receives, so treat your plants to regular showers in a sink or tub to keep the leaves clean.

The following is a partial list of plants to consider for various exposures.

North Windows: ferns, such as birds nest fern *(Asplenium nidus)*, squirrel's foot fern *(Davallia trichomanoides)*, and holly fern *(Cyrtomium falcatum)*; spathe flower *(Spathiphyllum)*; prayer plant *(Maranta leuconeura)*; cast-iron plant *(Aspidistra elatior)*; and *Philodendron* species.

South Windows: cacti and succulents, such as *Sedum, Aloe, Echeveria*, and jade plant *(Crassula argentea)*; ivy *(Hedera helix)*; silk-oak *(Grevillea robusta)*; ponytail-palm *(Beaucarnea recurvata)*; and calamondin *(×Citrofortunella mitis)*.

East or West Windows: Boston fern *(Nephrolepis exaltata)*; weeping fig *(Ficus benjamina)*; lady palm *(Rhapis excelsa)*; Amazon lily *(Eucharis grandiflora)*; staghorn fern *(Platycerium bifurcatum)*; Norfolk Island pine *(Araucaria heterophylla)*; Moses-in-the-cradle *(Rhoeo spathacea)*; India rubber tree *(Ficus elastica)*; cutleaf-philodendron *(Monstera deliciosa)*; flame-violet *(Episcia cupreata)*; natal-plum *(Carissa grandiflora)*; parlor palm *(Chamaedorea elegans)*.

Adequate light, proper watering, humidity levels, fertilizing and soil conditions also are essential for maximum growth. They will help a plant thrive under less-than-ideal light conditions.

SEASONAL REMINDERS

Winter Drought

Winter cold causes its own kind of drought. During winter warm spells, although roots are nearly dormant, evergreen foliage exposed to warm temperatures will begin to transpire water. Roots cannot replace the water as quickly as it transpires, causing the condition known as winter burn. Be sure to water evergreens if warm weather persists for a few days.

Seed Sowing Savvy

Although the weather outside indicates that winter is far from over, it isn't too early to start collecting seeds and supplies needed for the spring rush. The average date of the last spring frost in the St. Louis area is April 15, although the latest frost recorded occurred on May 10. Seeds of vegetables grown from transplants and most common annuals need to be sown indoors six to eight weeks before the last frost, roughly the last week in February or the first week in March. Fast-growing annuals, such as marigolds, need be sown only four to six weeks before the last frost date. If you are planning to grow any of the following from seed, sow them before the end of January, because they generally take 12 to 16 weeks from seed: ageratums, begonias, annual carnations, geraniums, impatiens, lobelias, verbenas, or Madagascar-periwinkle (*Catharanthus roseus*).

—Barbara Ellis

TROPICOS/THE GARDEN'S DATABASE SYSTEM

There are about 250,000 species of plants in the world, for which some 10,000 or so botanists have published approximately 1,000,000 names since 1753, the publication date of Linnaeus's *Species Plantarum*, the established start date for the names of most plants. We know varying amounts of information about each of these quarter-million species of plants. This ranges from very little knowledge based on only one specimen collected long ago and never since restudied, as in the case of many tropical plants, to literally volumes full of information for important crop plants such as corn and sunflower. Traditionally, botanists have attempted to keep track of these plants and information about them through the production of indexes to names and other printed materials, but the large numbers of plants and small numbers of botanists have resulted in an imperfect system of information retrieval. Electronic data processing has long held promise for botanists to be able to overcome some of these problems of quantity, but only in the last few years have computers become inexpensive enough, reliable enough, and powerful enough to really become an effective tool for systematic botanists.

Starting in the mid-1970s the Garden began exploring the use of computers to keep track of the many names being published for mosses, but at that time the available computer systems seemed to be not quite up to the task. Fortunately, we developed data capture cards specifically designed for a computer database format, and accumulated information using these cards. In the early 1980s we acquired our first on-campus computer, an early microcomputer called an Osborne 01. At that time Robert E. Magill joined the staff, after having spent several years in South Africa at the Botanical Research Institute in Pretoria. There he was instrumental in developing and implementing a computer database, and when he returned to the Garden he was able to develop a system for keeping track of moss names using the little Osborne. Soon thereafter, the botany department began sharing some time on the membership/controller's minicomputer, and Magill developed programs to produce the many thousands of herbarium labels required each year by the research program. The moss tracking programs were also moved to this minicomputer, since the microcomputer did not have the capacity for holding many records. In 1985 the research program obtained its own minicomputer, and the software development was accelerated, resulting in the database system we now have, called TROPICOS. The database now contains about 380,000 of the million published names, and it contains information on nearly 100,000 type specimens, nearly 200,000 distribution records, and just over 100,000 records of synonymy.

In addition to recording and manipulating information about plant specimens and plant names, there are many other aspects of TROPICOS that contribute to the research effort at the Garden. For example, it keeps track of all of the incoming and outgoing shipments of specimens from the herbarium, some 200,000 per year when loans and exchanges are taken into consideration. It is used for managing the journals program in the library, and it is even used as an in-house electronic mailbox.

The system is being enhanced to write the descriptions for the Flora of North America project, coordinated here at the Garden. It will also be used in the newly initiated Flora of China project.

The system has now come full circle, with the implementation of pcTROPICOS, a set of programs that are very similar to the master set, but capable of being run on microcomputers. Distribution of pcTROPICOS to other botanical gardens and botanical researchers, together with subsets of the master database from the minicomputer version of TROPICOS has begun. Each pcTROPICOS installation is customized for the user, depending on that individual's needs. For example, Ghillean Prance, director of the Royal Botanic Gardens, Kew, uses pcTROPICOS for his studies of the New World members of the Proteaceae, or *Protea* family. We were able to provide him with a basic set of names of New World Proteaceae together with some associated information, for example, their general distribution and some of the synonyms of the various names.

Our hope is that pcTROPICOS will become established as a standard system for recording and manipulating information about plants. As more and more individuals and institutions use the system, all recording similar information in identical formats, it will be more and more feasible to exchange information via computer links and to integrate these various subsets of information into national or regional master sets of information available to all users.

—Dr. Marshall R. Crosby

Dr. Crosby recently was appointed assistant director of the Garden (see page 20).

Three Grants Support Madagascar Research

Three separate grants, announced recently, will provide funding for research in Madagascar. The National Geographic Society has awarded $15,900 to Dr. Voara Aurelien Randrianasolo, a Garden research associate and head of the department of natural history for the National Research Center in the city of Tsimbazaza. The grant will allow Dr. Randrianasolo to inventory the island's plant and animals, and to evaluate boundaries for a potential reserve. The National Geographic Society also has awarded $8,250 to Garden research associate Dr. Marion Nicoll for a study of the Marojejy Massif, a poorly-known area considered to be of great ecological and evolutionary significance.

In addition, the World Wildlife Fund has awarded $3,000 to purchase two micro-computers that will help establish a Conservation Data Center (CDC) in Antananarivo, the capital of Madagascar. The CDC will support the Garden's research and conservation program there, and will be based at the National History Department of the Centre National de Recherches de Tsimbazaza.

Madagascar, located about 250 miles off the east coast of southern Africa in the Indian Ocean, is the world's fourth largest island and covers an area nearly twice that of Arizona. Biologists estimate that at least three-fourths of the plants found in Madagascar do not occur anywhere else in the world.

Ask the Answer Service

Propagating and Pruning

Do you have a plant question? Call the Horticultural Answer Service, Monday through Friday, 9 a.m. to noon, at **577-5143.**

Q. *We planted some Lilyturf several years ago. When it grows in the spring it always looks yellow and untidy. Should it be cut back, and if so, when?*

A. Lilyturf *(Liriope selections)* should be cut back each spring about the time it begins to make new growth. Hand pruners work well for a few plants, but if you have a large planting, your lawn mower will make short work of the task. Set the mower to cut high, leaving about 3 or 4 inches of old growth.

Q. *A friend gave me some rosebud geraniums several years ago. Over the years I have gradually lost my best plants. What's the best way to start some new ones?*

A. Rosebud geraniums are an old-fashioned type known for their tiny, double flowers, which never open fully and which resemble miniature clusters of roses. The geraniums propagate easily from cuttings, creating vigorous new plants. When making geranium cuttings, select vigorous, healthy shoots. Four-to six-inch tip or side cuttings made in mid to late summer will root quickly. Always use clean, sterile tools and materials. Take your cuttings directly below a leaf node using a sharp knife. Let the cuttings sit overnight so the wound starts to callus. Strip the lower leaves and insert the cutting in a moistened medium, such as vermiculite, perlite or coarse sand. Rooting hormones are unnecessary with geraniums. Place the cuttings where they receive light shade and keep the medium slightly moist. Rooting should occur in two or three weeks.

If you prefer simply to start over with new plants, the Answer Service can help you find suppliers of rosebud geraniums and other unusual or hard-to-find plants.

Q. *I have some castor-beans that were home grown and given to my dad. I told him that they are poisonous. Can they be used to poison moles in the yard?*

A. You are right about the castor-beans *(Ricinus communis)* being poisonous. These seeds are quite toxic and under no circumstances should they be eaten. As far as using them to poison moles in the yard, I have no confidence in this common home remedy. Moles are carnivorous, and if they ingest any plant material at all, it is only incidental to their search for insects and earthworms. It is true that castor beans have a repugnant taste, but if a mole encounters one in his tunnel, he is more apt to just remove the offending bean than be repelled by it. It is my opinion that a harpoon trap remains the most ecologically sound and effective method of controlling moles.

Q. *I received an amaryllis bulb for Christmas. Can you tell me what I should do once it stops blooming?*

A. For now, keep your amaryllis *(Hippeastrum)* in a cool, shaded location to prolong the bloom. The soil should be kept uniformly moist. When flowering is completed, cut the flower stalk off an inch above the bulb. Don't be alarmed if the cut stalk weeps profusely. This is normal and will stop quickly. The stalk will eventually dry and wither. Place your plant where it receives several hours of direct sunlight daily. Take care not to damage any of the leaves. Keep the soil moist and fertilize regularly. In early May the plant should be moved outdoors. Gradually shift it from a protected site to a sunny location where the pot may be sunk in the ground to the rim. Continue normal care until fall when the pots should be lifted and stored indoors in a cool room. Withhold water to make the foliage die, and let the plants rest for two or three months. When you resume watering, and with exposure to full sun, flowering should begin again.

Q. *What's happening to my angel-wing begonia? It suddenly began to drop healthy green leaves.*

A. You are probably overwatering your begonia. Angel-wings should not be watered until the soil in the pot has dried completely. Appearances aside, they are sturdy plants, and yours should recover. Move your plant immediately to a bright southeast or southwest window where it receives several hours of direct sun. Most begonias welcome all the light they can get at this time of year. If the lower stems have become bare, prune back the tops to just above a leaf node. This will encourage branching, and the new, young growth provides the best blooms.

Q. *I have an old rosebush that wasn't getting enough sun. My nurseryman suggested I prune the roots last fall and move it this March. After I transplant it, should I fertilize heavily?*

A. Don't fertilize it at all until after the rose has started to recover on its own. The move will be traumatic for an old rose, and it will take a while to reestablish. The advice to root prune last fall was sound. Just keep the rose well watered, and apply a mulch to stabilize soil conditions. A light feeding with about 1/3 cup of 12-12-12 fertilizer in late July should be sufficient for this year. Resume a normal fertilizing schedule next spring.

TIMELY TIPS

- Hand pollinate citrus blooming indoors if you wish to harvest fruit next winter.
- Run germination tests on all old garden seeds to determine if they are worth saving.
- Pruning fruit trees should be completed by mid to late February. Save your peaches for last, as these trees should be pruned just before they bloom.
- Try forcing some of your pruned fruit tree branches to bloom indoors this spring.
- Cut branches of spring-blooming shrubs for forcing after the buds begin to swell a little.
- Keep your pruner saw blade from clogging by spraying it each morning with a liquid nonstick product such as DuPont "Slip Spray." It should last all day.
- Wait until pruning is completed before applying dormant oil sprays to fruit trees. Complete this task before buds begin to open.
- Nuts that have been stratified indoors over the winter may be planted outdoors toward the end of February.
- As soon as the ground has thawed, sow seeds of sweet peas, larkspurs, shirley poppies, cornflowers, calendulas, cleomes and california poppies.

—Chip Tynan, The Answer Service

CENTENNIAL
Board of Trustees
1889 1989
Missouri Botanical Garden

1989 CENTENNIAL TOUR/May 13, 1989

The Gardens of Yorkshire

Dr. and Mrs. Raven invite Garden members to join them on a historic tour of the homeland of Henry Shaw. This trip commemorates the centennial of the Garden's Board of Trustees. Patrick Bowe, noted Irish architect, garden designer and historian, will travel with the tour in Yorkshire and lead the group through some of the most beautiful private gardens in England. The itinerary includes:

- **MAY 13 / EN ROUTE:** Depart St. Louis for flight to London, connecting in New York.
- **MAY 14 / ARRIVE LEEDS:** Stay at Devonshire Arms Hotel, Bolton Abbey, recently restored with antiques from Chatsworth.
- **MAY 15 / LEEDS:** Tour two private gardens, plus the magnificent 18th century landscaping of Studley Royal. Reception in Fountains Hall, courtesy of the National Trust.
- **MAY 16 / CHATSWORTH & SHEFFIELD:** Visit Chatsworth, home of the dukes of Devonshire and Henry Shaw's inspiration for his Garden. Then tour Sheffield, birthplace of Shaw.
- **MAY 17 / LEEDS:** Spend the day visiting small private gardens near Leeds.
- **MAY 18 / YORK:** Tour the 60 acres of Harlow Car, with its famous water gardens; then enjoy the Victorian spa town of Harrowgate.
- **MAY 19 / YORK:** Spend the day at Castle Howard, setting for *Brideshead Revisited.*
- **MAY 20 / YORK:** Visits to private gardens, plus early-18th-century Duncombe, overlooking the ruins of 12th century Rievaulx Abbey.
- **MAY 21 / YORK:** Tour the National Trust Garden at Beningborough Hall.
- **MAY 22 / YORK:** Explore the historic medieval city; fly to London in the afternoon.
- **MAY 23 / LONDON:** Enjoy Members' Day at the world-famous Chelsea Flower Show.
- **MAY 24 / LONDON:** Visit the Royal Botanic Gardens, Kew.
- **MAY 25 / LONDON:** Spend the day exploring the city, followed by a farewell dinner at Simpson's-in-the-Strand.
- **MAY 26 / USA:** Return flight to St. Louis, connecting in New York.

A brochure with complete information is available from the Membership Office. Call Brenda Banjak (314) 577-9517 to request a brochure or to make reservations. Space is limited. **The deadline for reservation deposits is January 15, 1989.**

MEMBERS' TOUR/March 29–April 3, 1989

Savannah & Charleston

Join us for this delightful visit to the lovely coastal cities of Savannah, Beaufort and Charleston. Picturesque streets and squares of the historic districts feature some of the finest examples of Victorian, Georgian and Greek Revival architecture in the United States. We will tour many beautiful private gardens, as well as a number of plantations. Horse drawn carriage rides, a candlelight walking tour and a drive through the fabled Lowcountry of coastal Georgia complete the trip. Call Brenda Banjak, membership coordinator, at (314) 577-9517 for more information, a brochure, or reservations.

Missouri Botanical Garden

CALENDAR OF EVENTS

January-February 1989

JANUARY

1 SUNDAY

Walking Tour

2 p.m., Meet at Ridgway Center ticket counter. (Please note: Tuesday and Saturday tours begin at 1 p.m.) Enjoy the special beauty of the Garden in winter, led by Guides trained to discuss horticulture, ecology, architecture, history and sculpture of the Garden. Tours will go regardless of the weather, so please dress appropriately. Free.

3 TUESDAY

Walking Tour

1 p.m. See January 1 for details.

4-5 WED.–THURS.

Garden Gate Shop Closed

for inventory.

6-7 FRI.–SAT.

Clearance Sale

9 a.m. to 5 p.m., Garden Gate Shop. Members receive 20% discount on all merchandise, plus special clearance prices.

7 SATURDAY

Walking Tour

1 p.m. See January 1 for details.

10 TUESDAY

Walking Tour

1 p.m. See January 1 for details.

JANUARY 12 / MEMBERS' DAY "The English Connection"

7:30 p.m., Shoenberg Auditorium. Slide lecture by Helena Williams, MBG education division. Learn about English influences that helped inspire Henry Shaw's Garden. Seating is limited; for Members only. Free.

JANUARY 28–FEBRUARY 26 / ORCHID SHOW

9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall. Travel south of the equator and view a magnificent selection of exquisite and unusual orchids. Shown in a natural setting, complete with thatched huts and a waterfall. Free. Special Members' preview: *see January 27.*

14 SATURDAY

Walking Tour

1 p.m. See January 1 for details.

15 SUNDAY

Walking Tour

2 p.m. See January 1 for details.

17 TUESDAY

Walking Tour

1 p.m. See January 1 for details.

21 SATURDAY

Walking Tour

1 p.m. See January 1 for details.

24 TUESDAY

"Project Paperchase" Poster Display

9 a.m. to 5 p.m., daily through February 6, Ridgway Center. Display of 32 award-winning posters created by area students, grades K-12, in a contest sponsored by Operation Brightside, St. Louis' anti-litter program. Free.

Walking Tour

1 p.m. See January 1 for details.

25 WEDNESDAY

"Project Paperchase" Awards Ceremony

Noon, Shoenberg Auditorium. Winners of the Operation Brights poster contest will be announced. Free. *See January 24.*

27 FRIDAY

Orchid Show Preview

5 to 8 p.m., Orthwein Floral Displ Hall. Join us for an early look at th magnificent display, for Members only. Entertainment, cash bar. Dinner buffet will be available in Gardenview Restaurant. Watch yo mail for details. *See highlight.*

28 SATURDAY

"Birds in Art" Exhibit

9 a.m. to 5 p.m. daily, through February 26, Ridgway Center. Paintings and sculptures organized by the Leigh Yawkey Woodson Art Museum. Financial assistance provided in part by the Missouri Arts Council, a state agency. Free.

Walking Tour

1 p.m. See January 1 for details.

31 TUESDAY

Walking Tour

1 p.m. See January 1 for details.

FEBRUARY

2 THURSDAY

"Tropical Orchids" Lecture

p.m., Shoenberg Auditorium. slide lecture, "Life in the Trees: Look at Tropical Orchids," by r. Kerry Walter, director of botany nd information systems, Center for lant Conservation. Free.

4 SATURDAY

Walking Tour

p.m. See January 1 for details.

5 SUNDAY

Walking Tour

p.m. See January 1 for details.

7 TUESDAY

Walking Tour

p.m. See January 1 for details.

8 WEDNESDAY

"Gardening by Design" Lecture

and 8 p.m., Shoenberg Auditoium. "New Perennials for the merican Garden," by Steve rowine, nursery merchandise irector, W. Atlee Burpee and Co. *ee highlight.*

10 FRIDAY

"Portraits of Africa: reating Wildlife Art"

and 7 p.m., Shoenberg Auditoium. Slide lecture by Lindsay cott, featured artist in "Birds in rt" exhibit (see Jan. 28), who disusses her trips to Africa. Free.

11 SATURDAY

laza Frontenac: "First Fashion ooks for Spring"

a.m., South Center Court, Plaza rontenac. A special event for Garen members only. Jan McCormick, shion consultant and model, will ow you how to build your spring ardrobe. Refreshments; limited eating. RSVP Plaza Frontenac, 32-0604.

alking Tour

p.m. See January 1 for details.

13 MONDAY

Booker T. Washington Oratory Contest

9 a.m. Shoenberg Auditorium. In celebration of Black History Month, four contest finalists from St. Louis public schools will orate the speech made by Booker T. Washington at the Atlanta Cotton Exposition in 1888. Co-sponsored by Operation Brightside. Free.

14 TUESDAY

Walking Tour

1 p.m. See January 1 for details.

15 WEDNESDAY

"Gardening by Design" Lecture

1 and 8 p.m., Shoenberg Auditorium. "Growing and Decorating with Ornamental Grasses," by Peter Loewrer, garden writer and author. *See highlight.*

18 SATURDAY

Legends and Tales of Black Heritage

11 a.m. to 5 p.m., Ridgway Center. Storytelling and theater in celebration of Black History Month. Free.

FEBRUARY 8–MARCH 15 / GARDENING BY DESIGN

The popular lecture series returns. A series of six lectures on gardening and landscaping topics, by noted experts. Presented on Wednesdays, February 8, 15, 22, and March 1, 8 and 15, at 1 and 8 p.m., in Shoenberg Auditorium. Tickets will be available by subscription for the afternoon or evening series, $20 Members, $25 non-members. Single tickets will be available at the door on the day of the lecture, *only if the series is not sold out:* $4 Members, $5 non-members. Watch your mail for details.

FEBRUARY 23 / MEMBERS' DAY
"Preparing the Garden"

1 and 7 p.m., Shoenberg Auditorium. Lecture by Brian Ward, MBG horticultural superintendent. Expert advice and helpful tips on getting your garden ready for spring. Seating is limited; for Members only. Free.

18 SATURDAY *continued*

MoBot Event

Watch the *MoBot News* for details.

Walking Tour

1 p.m. See January 1 for details.

19 SUNDAY

Walking Tour

2 p.m. See January 1 for details.

20 MONDAY

International Perspective on AIDS

5:30 p.m. reception; 6:30 p.m. lecture and discussion, Shoenberg Auditorium. $5 per person; call 721-1961. *See page 15.*

21 TUESDAY

Walking Tour

1 p.m. See January 1 for details.

22 WEDNESDAY

"Gardening by Design" Lecture

Lecture 1 and 8 p.m., Shoenberg Auditorium. "Beyond the Traditional Herb Garden", by Linda Askey Weathers, associate garden editor for *Southern Living* magazine. *See highlight.*

25 SATURDAY

Walking Tour

1 p.m. See January 1 for details.

25-26 SAT.–SUN.

Spring Gardening Fair

9 a.m. to 5 p.m. daily, Ridgway Center. Lectures, displays and exhibits on gardening, co-sponsored by the *St. Louis Post Dispatch*. Call 577-5125 for more details, beginning Monday, January 30. Advance registration and fee for lectures.

28 TUESDAY

Walking Tour

1 p.m. See January 1 for details.

FROM THE MEMBERSHIP OFFICE

1939 **50** *1989*
Years of Membership
Missouri Botanical Garden

◀ **A PICTURE FROM THE PAST: Robert Brookings Smith, a Garden Trustee (left) with Mr. and Mrs. Dudley French. Mr. French, a Garden Trustee (1937-1960), played an active role in the formation of a support organization developed in 1939. The "Friends of the Garden" were instrumental in efforts to raise funds for the Arboretum and signaled the initial stages of the Garden membership program that began 50 years ago.**

1989 MEMBERS' DAYS

Jan. 12	Lecture: "The English Connection"
Feb. 23	Lecture: "Preparing the Garden"
Mar. 23	Backstage Garden Tour
Apr. 8	Family Arbor Day
May 11	Arboretum Walk—Wildflowers & Birds
May 19	Purple Martin Evening
June 15	Heart Stroll
July 14	Members' Musical Evening
Aug. 5	Early Morning Stroll
Sept. 14	Tower Grove House Day
Oct. 20	Lecture: "Missouri Botanical Garden History"—Dr. and Mrs. Peter H. Raven
Nov. 8	Lecture: "1904 World's Fair"
Dec. 9	I.T.C. Theatre Production

IN MEMORIAM/*Mrs. Sydney Shoenberg, Jr.*

Mr. and Mrs. Sydney Shoenberg, Jr.

Mrs. Sydney Shoenberg, Jr. a longtime friend of the Garden, passed away the evening of Thursday, October 27. Mrs. Shoenberg's involvement with the Garden began in the early 1960s, when she served on what was then known as the Womens' Committee, a precursor to our Members' Board today. The Womens' Committee conducted one of the Garden's first fundraisers, a preview party after the opening showing of the movie *My Fair Lady* at the Fox Theatre. She also frequently served as a hostess for shows in the old Floral Display Hall.

Mrs. Shoenberg's interest in the Garden stemmed from her love of the outdoors and her commitment to the support of cultural institutions. She traveled extensively, including by safari, and was keenly interested in hunting and fishing. She was also an avid golfer and a member of the Womens' District Golf Association.

Mrs. Shoenberg's daughter, Mrs. Walter (Nora) Stern, also a strong supporter of the Garden, serves as a Trustee and is a past president of the Members' Board. Nora noted that "My mother encouraged my first associations with the Garden around 1965. She believed that young people held a responsibility to become involved with cultural and other service institutions—that the strength of community institutions couldn't just come from older or retired volunteers. In addition to her work at the Garden, she served on the Jewish Hospital Nursing Service Committee and at the St. Louis Art Museum as a Friend and Chairwoman of their Ballmasque fundraiser."

Mrs. Shoenberg is survived by her husband, Sydney, an investment banker and a Garden Trustee, and three daughters.

Tributes received in memory of Mrs. Shoenberg will be listed in the March/April issue of the *Bulletin*.

NEWS FROM SHAW ARBORETUM

Prairie Seed Harvest

Caroline Sant, a volunteer (left), and Joyce Davit collecting seeds from a compass plant.

How do you harvest the seeds of a nine-foot-tall compass plant? Bring a stepladder to the prairie? Fortunately, the stalks of these giant prairie perennials can be bent over and the seeds stripped off, allowing the plant to spring back as an object for observation and wonder. The compass plant, *Silphium laciniatum*, gets its common name from the fact that its large basal leaves are vertical with their edges oriented north-south, thus helping travelers of old find their direction on the vast prairies.

In spite of the record drought of 1988, the deep-rooted prairie plants produced a good crop of seed. More than 150 pounds of seed from 65 species of wildflowers and grasses were collected last fall. This seed will be used to plant an additional two-and-a-half acres on the west edge of the Experimental Prairie, and to plant several smaller areas which were plowed to kill fescue and bluegrass and kept fallow for a year.

Some seed will be sold in small packets in the Arboretum's Visitor Center for people who want to try some native perennials in their gardens or start a prairie garden. These seeds will be available beginning in January. Instructions for planting and pre-treatment of seeds will be provided with purchases.

—William Davit, Shaw Arboretum

International Perspective on AIDS

Dr. Johnathon M. Mann, Director of the World Health Organization's Global AIDS Program, will be the guest speaker in the Shoenberg Auditorium on Monday, February 20, at 6:30 p.m. Dr. Mann is on loan to the World Health Organization from the U.S. Center for Disease Control.

Dr. Mann's presentation, "International Perspective on AIDS", will be followed by a public discussion. The program will be preceded by a reception in the Beaumont Room at 5:30 p.m.

The forum is sponsored by the American Red Cross, the International Education Consortium, Leadership St. Louis, L.I.N.K.S. Gateway Chapter, the Missouri Botanical Garden, the St. Louis Metropolitan Medical Society, the United Nations Association, and the Urban League.

Reservations are $5 per person, and may be made by calling the United Nations Association at 721-1961. Seating is limited.

GIFT MEMBERSHIP ORDER FORM—*Please mail at least three weeks prior to occasion:*

☐ *Valentine's Day* ☐ *Birthday* ☐ *Other* ____________

Gift To:

NAME ____________

ADDRESS ____________

CITY ____________ STATE ________ ZIP ________

TELEPHONE ____________

Sign gift card: ____________

Date Needed By: ____________

Regular Membership $40. Contributing Membership $75.

For more information call 577-5118.

Gift From:

NAME ____________

ADDRESS ____________

CITY ____________ STATE ________ ZIP ________

TELEPHONE ____________

☐ Enclosed is my check for $ ____________

☐ Please charge: VISA No. ____________

MasterCard No. ____________

Name as it appears on card: ____________

Expiration date: ____________

Please make checks payable to: Membership Office, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166.

35th Annual Systematics Symposium

Participants in the Symposium included (left to right): George Rogers, Stanley A. Temple, Alan R. Templeton, Michael E. Soulé, David Bramwell, David R. Given, Rep. Jack Buechner, and Donald A. Falk. Not pictured: Bruce A. Wilcox.

Conservation of plant and animal species was the topic of the 35th annual systematics symposium held at the Garden on October 7 and 8. The title of this year's symposium was "Conserving Biological Diversity—Prospects for the Twenty-first Century." The symposium was supported in part by a grant from the National Science Foundation.

More than 400 scientists from around the world were in attendance to discuss how to prevent the predicted catastrophic loss of biological diversity by the early 21st century. The discussions and presentations focussed on the scientific approach needed for averting the full onslaught of the problem, as well as some of the practical results and methods of implementing scientific principles of biological conservation.

The Garden participates in The Center for Plant Conservation, a national organization of botanical institutions cooperating in supporting wild populations through protective cultivation. Dr. George Rogers, who leads the Garden's effort, moderated the Symposium.

Jack Buechner, Congressman from Missouri's second district, addressed the symposium on the current status of efforts to promote passage of the National Biological Diversity Act. Enactment of the act would be a major step toward protecting America's, and the world's, biological diversity. "It's essential that we develop long-term, large-scale plans," Buechner said, "aiding the cause of both peace and prosperity in the future."

NEWS FROM TOWER GROVE HOUSE

Historical Committee Begins Restoration

In honor of its 30th anniversary, the Historical Committee is initiating the project of restoring the furniture in Tower Grove House. The first piece to be restored is Henry Shaw's cylinder secretary. Much of the furniture in Tower Grove House is in need of attention due to dryness caused by the heating system, and the restoration will be an ongoing project as funds become available.

The Historical Committee was founded in 1959 to advise the Board of Trustees on restoration and renovation of Tower Grove House. The committee is developing a long-range plan for redecoration of the house.

Bolivian Research Project Receives Funding

The Garden's research program in Bolivia has received a three-year grant of $100,000 from the Agency for International Development (A.I.D.). The grant will support work assessing the economic importance of the native tree species. Objectives of the research program include collecting samples of and identifying tree species found between 200 and 1200 meter elevation along the eastern slope of the Serrania de Pilon Lajas; supervising and training Bolivian foresters and botanists in field collection and identification techniques; and preparing a botanical database and illustrated field guide for Andean trees of the region.

The Agency for International Development is a government organization devoted to the support of developing countries in their efforts to improve their standards of living. At present, A.I.D. is actively involved in supporting activities related to the conservation and sustainable utilization of the biological diversity in tropical countries of the world.

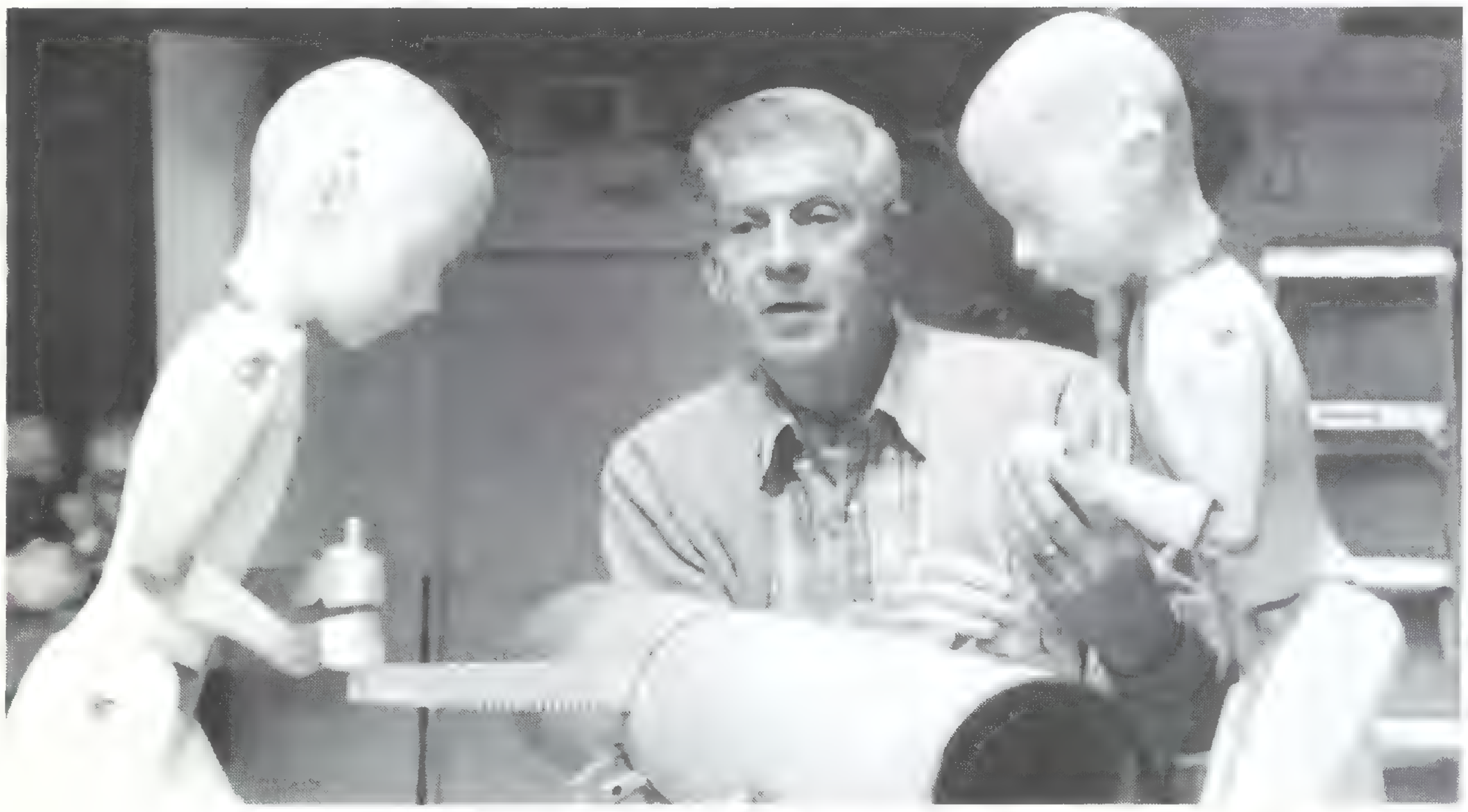
William L. Brown Fellowship Supports Work in Costa Rica

A $20,000 research grant for the Garden's 1989 William L. Brown Postdoctoral Fellowship has been awarded by Pioneer Hi-Bred International, Inc. The company supports research relating to agronomic plants, and established the fellowship in 1981 to honor Brown, its chairman of the board at the time. Brown received his Ph. D. in botany from Washington University and the Garden in 1941, and was awarded the Henry Shaw medal in 1986 (see page 3).

The 1989 Brown Fellow is Dr. Michael H. Grayum, who is stationed in Costa Rica doing botanical research in conjunction with the National Museum of Natural History and other organizations. This is Grayum's third consecutive year as the recipient of the Brown Fellowship. Grayum's work in Costa Rica includes preparing an inventory of the plants of the country; producing a Spanish-language manual of its vascular plants; and compiling a computer-based data bank.

Volunteer Profiles

HORACE ALLEN AND BOB LUMLEY



Horace Allen

Bob Lumley

Visitors to the Garden's popular floral displays are constantly amazed and delighted by the dazzling settings that complement the plants. With the opening of the Orthwein Floral Display Hall in 1982, the flower shows have become increasingly elaborate, and this has been due in no small part to the contribution of Horace Allen and Bob Lumley, volunteers in the display department.

Bob was the department's first volunteer, joining in March, 1985. At that time much of the scenery for shows was improvised, and there were no power tools at all. Bob, a self-taught carpenter, now builds many of the props. He also does electrical wiring. Bob retired as president of United Electric Supply, and works at least 500 hours a year at the Garden and Arboretum.

Horace Allen joined the Garden as a volunteer in June, 1986, after his retirement from McDonnell Douglas. He had been with the company for 37 years. Before that, in 1948, he worked at Scruggs, Vandervoort & Barney in the store's display department. There he learned the art of creating the charming animated figures that enlivened the Garden's recent "Holiday Fantasy" show. Horace designs the figures, builds them, and constructs the motors and wiring that bring them to life. Horace contributes more than 1,000 hours a year to the Garden.

"These two fellows are just amazing," says Brian LeDoux, head of the floral display department. "They are willing to do anything and everything to make the shows a success, including working long hours during our busy season. We wouldn't be able to do what we do without them."

Calendars Share Garden's Beauty

The Missouri Botanical Garden Calendar, with its magnificent color photographs by Jack Jennings, is a perennial favorite. It is a splendid way to share the beauty of the Garden with friends who cannot visit St. Louis, and to document the loveliness of each passing season. Each year the Office of the Director mails more than 3,000 calendars to friends and supporters around the world.

This generosity is made possible by Mrs. William H. Schield of St. Louis, who annually supports the printing of the calendars. "The Garden is such a wonderful place and the calendars are so beautiful, I wanted to share its beauty with others," Mrs. Schield said.

From the Garden Gate Shop

Shop Closed for Inventory

Wednesday and Thursday,
January 4 and 5, 1989

January Clearance Sale

Friday and Saturday, January 6 and 7,
9 a.m. to 5 p.m.

Join us for a final clearance sale! Members receive a 20 percent discount on all merchandise, with some items available at special low prices.

The last issue of the *Bulletin* incorrectly listed the Shop's "Holiday Preview Sale" in December instead of November. We apologize for the error.

Garden Guidebook

All your favorite Garden places are now captured in words and pictures. The Missouri Botanical Garden *Guidebook* takes you through the Garden with a step-by-step description and full color photographs. The book contains a brief section on the Garden's history, and a full listing of sculpture and fountains. The *Guidebook* is an ideal way to share the Garden with out-of-town friends. This is a 52-page publication, available from the Garden Gate Shop for only $6.95.

Garden Hosts International Conservation Workshop

On October 14 and 15, 1988, the Garden hosted a meeting of international scientists, who met to discuss critical needs for preservation of plant genetic resources. The October workshop set the stage for a conference to establish a global initiative on *ex situ* preservation. *Ex situ* preservation focuses on preserving genetic materials in locations other than those where plants are native. The work done at seed banks, botanical gardens, tissue culture centers and similar establishments are examples of *ex situ* preservation.

Workshop planners concentrated on ways to enhance efforts in this field of research. It is expected that the conference, planned for 1990, will consider all potentially useful plants, especially those from tropical areas of the world which contain the greatest diversity of genetic resources.

The workshop was coordinated by the Institut de la Vie, a distinguished group of scientists including a number of Nobel Laureates, which is headquartered in Geneva, and led by Professor Maurice Marois of the University of Paris. The Institut is known for its efforts to organize scientific genius in the service of man. Funding for the workshop was provided by RJR Nabisco through the efforts of Dr. Robert Smith, vice president of Nabisco Brands.

Shown at the workshop (left to right): H. Garrison Wilkes, Robert Smith, Maurice Marois, Peter H. Raven.

IN MEMORIAM / *Mrs. Eugene F. Zimmerman*

The Missouri Botanical Garden lost a good friend on October 30, 1988 with the death of Mrs. Eugene F. Zimmerman. Her support of the Garden spanned two decades and included the development of the Scented Garden for the Blind, which she dedicated to the memory of her grandmother, Susannah F. Mack and her mother Lillian C. Lowis. As a beautiful addition to the Scented Garden, Mrs. Zimmerman subsequently made it possible to add the striking bell chime sculpture by the artist Paolo Soleri. Her final act of generosity to the Garden was to endow the lovely area she helped to create.

The scented garden, among the first in the country, has become one of the most popular features of the Garden. It provides an area for the disabled to touch and smell plants chosen especially for their interesting textures or aromas. The addition of the Soleri chimes has enriched the experience further by including the sense of hearing. Mrs. Zimmerman wished to ensure that the enjoyment of the scented garden to the public would continue in perpetuity and did so by a provision in a trust.

Garden Sponsors Teacher Training Program in Colombia

Last June, Karla Goodman, the Garden's ECO-ACT coordinator, returned from Medellin, Colombia, where she conducted a two-week institute in environmental education. Goodman has been working to develop a program in Colombia since 1984, when she was invited by Enrique Renteria, scientific director of the Medellin Botanical Garden, to present a course based on the Missouri Botanical Garden's award-winning environmental leadership program, ECO-ACT. The trip in June was Goodman's fourth and final visit in conjunction with the program. From now on Colombian teachers will continue the project independently.

The ECO-ACT program prepares students to teach environmental science. The program in Medellin trains elementary school teachers, who in turn work with high school students who assist them in the classroom. Outstanding participants are then selected to offer the program to other teachers. In 1987, Goodman developed a Spanish-language workbook to document the institute and facilitate its dissemination.

The basic course, "Methodology for Teaching Ecology", has been offered eight times since 1984, and has reached 320 teachers. Most have gone on to take two upper level courses, "Ecology of Antioquia," taught in cooperation with professors at the University of Antioquia, and "Plant Collecting for Teachers," taught by the Medellin Botanical Garden herbarium staff.

Response to the program has been enormous. Ambitious plans are underway to expand the program to educate and involve the community, and to develop a Center for Environmental Education at the Botanical Garden in Medellin. The project has the support of Colombia's Secretary of Education.

"This has been a wonderful experience for me," Goodman said, "and it is very encouraging to see the enthusiastic response to environmental concerns. For me, the project is ending, but for this inspired, dedicated group, it is only the beginning."

Trustee Profiles

Marguerite Ross Barnett

Gene McNary

GARDEN ADDS TRUSTEES TO BOARD

The Garden announced recently that two ex-officio members have been added to the Garden's governing Board of Trustees. The new positions are filled by the Chancellor of the University of Missouri-St. Louis and the St. Louis County Executive. According to Peter H. Raven, "It seems appropriate to add the County Executive since our tax support comes from both St. Louis City and St. Louis County, and the Chancellor of the University of Missouri-St. Louis since the Chancellor of Washington University and the President of St. Louis University presently serve as ex-officio Trustees." The Mayor of the City of St. Louis has been an ex-officio Trustee since 1889 when the first Board of Trustees was convened.

Marguerite Ross Barnett, Chancellor of U.M.-St. Louis, came to St. Louis from New York where she served as the Vice-Chancellor for academic affairs for the City University of New York, a 21-college system serving 180,000 students. She earned a B.A. from Antioch College and an M.A. and Ph.D. from the University of Chicago, and taught at the University of Chicago, Princeton, Howard and Columbia Universities. Since coming to the St. Louis area, Barnett has been active in business and community affairs, serving on a number of corporate and civic boards. She holds appointed or elected positions in the American Council on Education, the Association of American Colleges and Universities and the Association of American Universities. Barnett is also the author/editor of five books and forty articles. "Her commitment to the metropolitan St. Louis area in education, business and civic improvement is obvious, and the Garden was pleased to include her as an ex-officio member of the Board of Trustees," said Dr. Raven.

Gene McNary, the St. Louis County Executive, joins the Board of Trustees as an ex-officio member, having served four elected terms in the county executive position. Prior to his election in 1974, McNary served two terms as St. Louis County's Prosecuting Attorney. He received a Bachelor of Science in Finance and a J.D. from Indiana University. He has served on a number of community boards including the Missouri Association of Prosecuting Attorneys, East-West Gateway Coordinating Council, Missouri Association of Counties, and the Regional Commerce and Growth Association. McNary is an ardent sports fan and has managed and coached sports for more than 20 years, from Little Leagues through collegians. Most recently McNary has become involved in the Institute for Advanced Study at Washington University, which strives to examine strategic issues with corporate and community leaders and university faculty.

As ex-officio members of the Board of Trustees, Barnett and McNary have voting rights on the Board and serve by virtue of their respective positions. In addition to those mentioned above, ex-officio members of the Board include the Bishop of the Episcopal Diocese of Missouri, the President of the Board of Education of the City of St. Louis, and the President of the Academy of Science of St. Louis.

Garden and Girl Scouts Team up to Form Resource Center Network

The Garden's Stupp Teacher Resource Center and the Resource Center at the Girl Scout Council of Greater St. Louis recently started a network for resource centers from similar community institutions. "Our common denominator is providing collections of materials and services to adults who work with children," said Pamela Pirio, coordinator of the Stupp Center. Co-founder of the network is Joyce Rich of the Girl Scouts. "We discovered how much our respective centers had in common and realized how much we could gain by working together," Rich said.

The network hopes to recruit members from institutions and organizations in both Missouri and southern Illinois that help adults who work with children. Thirteen charter members include personnel from Cahokia Mounds Historic Site, United Nations Association, International Education Consortium, Saint Louis Art Museum, River Bluffs Girl Scout Council, Magic House, International Cultural Center of the Ferguson/Florissant School District, St. Louis Science Center, St. Louis Zoological Park, and Missouri Department of Conservation.

Areas which the network plans to explore are volunteer/staff relations, production of audio-visual materials, and the development of more effective communications with school teachers and leaders of youth groups. Major features of the self-help group are exchanges of ideas, a telephone hot-line, visits to each of the members' resource centers, and ongoing development of the role played by resource centers in the community.

"We are all concerned with human development and welcome other resource centers to join us," Pirio said. Interested groups should contact Pamela Pirio at 577-9501 or Joyce Rich at 241-1270.

The Henry Shaw Academy

The Henry Shaw Academy offers students aged seven and older exciting ways to investigate topics in science, ecology and natural history. A membership in the Academy is $15 per year, and includes newsletters, a membership card, invitations to special events and an Academy T-shirt. For a complete brochure on current HSA classes and activities, call 577-5140.

MILLES SCULPTURES DEDICATED: (left to right) James D. Burke, president of the Gateway Foundation and director of the St. Louis Art Museum; John H. Biggs, president of the Garden's Board of Trustees; and Peter H. Raven, the Garden's director, standing in front of the three angel sculptures installed this summer in the water lily pools in front of the Climatron. The ceremony on October 19, 1988, formally dedicated the seven bronze sculptures by Carl E. Milles of Sweden.

Tributes SEPTEMBER-OCTOBER 1988

In Honor Of:

Peggy Abel
Ladue Garden Club

Mr. and Mrs. Lester Ackerman, Jr.
Mr. and Mrs. Henry C. Lowenhaupt
Mr. and Mrs. Louis G. Rothschild, Jr.
Mr. and Mrs. Melvin S. Strassner

Mr. and Mrs. Eugene Arnold
Mr. and Mrs. Charles M. Tureen
Mrs. Grant Wyatt, Jr.

Mr. and Mrs. Clarence Baris
Mr. Melvin F. Roman

Mr. and Mrs. Keith Barrons
Mr. and Mrs. John R. Gannett

Judy Bellos
Cecily Hoffius
Brian McClure
Mrs. Juanita L. Yewell

Mr. Arthur Bierman
Mr. and Mrs. Rudolph Freedman

Mr. and Mrs. Donald Bill
Mrs. Carol Avins
Jenny and Sara Avins
Dr. and Mrs. Laurence Avins

Mr. and Mrs. Allan Brodsky
Dr. and Mrs. Oscar H. Soule

Miss Molly Cohn
Mr. Peter A. Postol

Mr. William W. Collinger
Mr. and Mrs. Walter G. Stern

Mr. and Mrs. E. R. Culver III
Mr. and Mrs. John A. Leschen II
Mr. and Mrs. Walter G. Stern

Mr. and Mrs. Richard T. Dalton
Mr. and Mrs. Walter G. Stern

Mrs. Jack Edlin
Mr. and Mrs. Thomas Rosen

Mr. Elmer Esrock
Mr. and Mrs. Rudolph Freedman

continued on next page

Behind the Scenes

Assistant Director Named

Marshall R. Crosby has been named assistant director of the Garden. In this capacity, Crosby will assist in directing the Garden's programs, and exercise administrative authority in the director's absence.

Garden director Peter H. Raven said, "For two decades, Dr. Crosby has served the Garden in a variety of roles. His hallmark has been innovative solutions to problems, and I look forward to working closely with him."

Crosby, who has been employed at the Garden since 1968, is a specialist in the study of mosses and he has built a research group of international signficance in this area. From 1977 to 1986, Crosby directed the research program at the Garden, administering programs of botanical exploration around the world, as well as the Garden's herbarium and library. Most recently Crosby was director of botanical information resources, with responsibility for the Garden's library and scientific publications. He also developed the Garden's computer database in systematic botany, TROPICOS, the most comprehensive system dealing with plants developed at any institution (see page 9). Crosby is also adjunct professor of biology at the University of Missouri-St. Louis.

A native of Florida, Crosby did his undergraduate and graduate work at Duke University, where he received his Ph.D. in 1969.

New Director of Horticulture

Robert E. Bowden has been appointed director of horticulture for the Missouri Botanical Garden effective the first of the year. In that position, he will be responsible for the 79 acres of outdoor displays on the Garden grounds, and for floral exhibits in the Ridgway Center.

Peter H. Raven, director of the Garden, said, "As the person responsible for the public face of our garden, this is an extremely important position for us. We conducted a nationwide search and were fortunate to find a very talented and capable candidate in Bowden."

Bowden comes to St. Louis from Old Westbury Gardens in Long Island, New York where he served as director of horticulture and operations for that 100-acre garden. Prior to joining Old Westbury Gardens, Bowden was estate manager for Applewood, the award-winning C. S. Mott Estate. Both the Mott Estate and Old Westbury Gardens are listed in the National Historic Register.

Bowden is an active community leader serving on many advisory boards, and has taught extensively at the university level and in community education programs. His academic credentials include a bachelor of science degree in ornamental horticulture and landscape design from Florida A&M University, and a master of public administration from the University of Michigan.

STATEMENT OF OWNERSHIP MANAGEMENT AND CIRCULATION (Required by 39 U.S.C. 3685) 1. Title of publication: BULLETIN. Publication No. 0026-6507. 2. Date of filing: October 1, 1988. 3. Six times a year, bimonthly in January, March, May, July, September and November. $12.00 per year. 4. Location of known office of publication: 2345 Tower Grove Avenue, St. Louis, MO 63110. 5. Location of the headquarters or general offices of the publishers: P.O. Box 299, St. Louis, MO 63166. 6. Names and complete addresses of publisher and editor are: Publisher—Board of Trustees, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166. Editor—Susan G. Wooleyhan, P.O. Box 299, St. Louis, MO 63166. 7. Owner: Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166. 8. Known bondholders, mortgagees and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages or other securities: None. 9. The purposes, function and nonprofit status of this organization and the exempt status for Federal income tax purposes has not changed during the preceding 12 months. Authorized to mail at special rates (section 432.12 DMM). 10. Extent and nature of circulation: A. Total no. copies printed. Average no. copies each issue during preceding 12 months 23,637. Actual no. copies of single issue published nearest to filing date 23,935. Paid Circulation: 1. Sales through dealers and carriers, street vendors and counter sales. Average no. copies each issue during preceding 12 months -0-. Actual no. copies of single issue published nearest to filing date -0-. 2. Mail subscription: Average no copies each issue during preceding 12 months 22,117. Actual no. copies of single issue published nearest to filing date 22,585. C. Total paid circulation: Average no. copies each issue during preceding 12 months 22,117. Actual no. copies of single issue published nearest to filing date 22,585. D. Free distribution: Average no. copies each issue during preceding 12 months 379. Actual no. copies of single issue published nearest to filing date 395. E. Total distribution: Average no. copies each issue during preceding 12 months 22,496. Actual no. copies of single issue published nearest to fililng date 22,980. F. Copies not distributed: 1. Office use, left over, unaccounted, spoiled after printing: Average no. copies each issue during preceding 12 months 1,141. Actual no. copies of single issue published nearest to filing date 955. 2. Return from news agents: Average no. copies each issue during preceding 12 months -0-. Actual no. copies of single issue published nearest to filing date -0-. G. Total: Average no. copies each issue during preceding 12 months 23,637. Actual no. copies of single issue published nearest to filing date 23,935. I certify that the statement made by me above is correct and complete. (signed) Susan G. Wooleyhan, Editor and Manager of Publications.

Dr. Jackson K. Eto
Ms. Virginia Haigler
Mrs. Edelyne Freund
Mr. and Mrs. Albert Gerber
Mr. and Mrs. Sidney Freund
Dr. and Mrs. Arthur R. Bortnick
Mrs. Leigh L. Gerdine
Mr. and Mrs. Paul Fusz Ring
Mrs. Myron Glassberg
Mr. and Mrs. Roger T. Hurwitz
Mr. and Mrs. Henry C. Lowenhaupt
Mr. Courtney Gould
Mr. and Mrs. Bernard Barken
Mrs. Natalie Handelman
Mr. and Mrs. Michael H. Freund
Mrs. Carolyn Henges
Nancy and Michael Winer
Cam and Rob Jansen
Carolyn K. Mandlman
W. Boardman Jones
Mr. and Mrs. Henry Hitchcock
Mr. and Mrs. Richard Kelly
Mrs. Robert H. Kittner
Mrs. Kay Kirstein
Mr. and Mrs. Albert Gerber
Mrs. Renee Kligman
Mr. Arthur Goldberg
Mr. and Mrs. Bernard Barken
Kathy and Craig Layton
Mr. and Mrs. Donald F. Reid
Mrs. Natalie Levy
Mr. and Mrs. Jerome M. Steiner
Mr. Allen B. Lewin
Mrs. Rose Floret
Rev. and Mrs. Marvin Lilie
Shirley Rowold
Mr. and Mrs. Gregg Lipton
Mr. and Mrs. Richard B. Rosenthal
Mr. Hugh Logan
Mr. and Mrs. Sydney M. Shoenberg, Jr.
Mrs. Vergie McNeal
Mrs. Raymond H. Bialson
Mr. Vernon Mendel
Mr. and Mrs. Harold N. Kravin
Mr. and Mrs. Daniel Meyer
Mr. and Mrs. Richard B. Rosenthal
Ian Campbell Murphy
Mr. and Mrs. Steven F. Schankman
Mr. and Mrs. Louis Poger
Mrs. Ruth Schwartz
Mr. and Mrs. Frank Purviance
Mr. and Mrs. Arthur F. Boettcher, Jr.
Dr. Peter H. Raven
Mr. and Mrs. Harvey A. Friedman
Mrs. Boyd Rogers
Mr. and Mrs. G. Kenneth Robins
Ms. Wilma Rosenberg
Mr. and Mrs. Marvin Kodner
Mr. Harvey Rudolph
Mr. and Mrs. Bernard Barken
Mr. Harold Sachs
Mr. and Mrs. Harvey Shapiro
Mr. and Mrs. Marvin Schmidt
Mr. and Mrs. Bernard Barken
Mr. Victor Schulein
Mr. and Mrs. Irwin R. Harris
Dr. and Mrs. Hyman R. Senturia
Mr. and Mrs. Lester R. Adelson
Mrs. Saul A. Dubinsky
Mr. and Mrs. Myron Glassberg
Mr. and Mrs. Frank P. Wolff
Mr. and Mrs. Sam Silverstein
Mr. and Mrs. Charles J. Cook
Mr. and Mrs. Joseph Simpkins
Mrs. Florence G. Stern
Dr. and Mrs. William A. Sims, Jr.
Mr. and Mrs. Walter G. Stern
Mr. and Mrs. Edward Stabno
Mr. and Mrs. John Skinner
Mr. and Mrs. Walter Stern
Dr. and Mrs. Robert Taxman
Mr. and Mrs. William Tao
Mr. and Mrs. Charles J. Cook
Mr. Simon Wagenheim
Mrs. Jean S. Bloch
Mr. and Mrs. Philip K. Marblestone and Children
Mrs. Else Weil
Mrs. Teel Ackerman
Mr. Martin Israel
George Werl
Melanie Broida
Mr. and Mrs. Henry C. Lowenhaupt
Mr. John E. Reid
David Wilson
Karla Goodman
Mr. Charles M. Moscowitz

In Memory Of:

Mr. Sylvester Alexander
Mr. and Mrs. Michael H. Freund
Mr. and Mrs. Walter G. Stern
Mrs. Alper
Mrs. Ruth Schwartz
Mrs. Bertha Anderson
Orchid Society of Greater St. Louis, Inc.
Mr. Omer H. Avery
Mrs. Roland O'Bryen
Mrs. Hildegarde Barthel
Mrs. Dorothy Schlueter
Dorothy Jean Becker
Miss Rose McKenzie
Mr. Cecil Bell
Mr. and Mrs. Roy R. Dressel
Mrs. Carol Bergmann
Mr. and Mrs. Herbert Schettler
Mr. Walter Berkman
Mr. and Mrs. Mark Shapiro
Mrs. Mary Alice Berndt
Mrs. Gloria A. Luitjens
Mr. William Bernoudy
Garden Club of St. Louis
Christopher Biraben
Mrs. Jane A. Jacobs
Verna Winter Boehning
University of Missouri, St. Louis—Residents and Friends 10th Floor
Altha P. Brandt
Mr. and Mrs. Robert F. Deppe
Dr. John R. Briscoe
Mrs. Dorothy Dwyer
Mrs. Mildred Brown
Mr. George Pitts and Linda
Mr. George Capps
Mr. and Mrs. William A. Frank
Mr. and Mrs. Robert E. Kresko
Mr. and Mrs. Sydney M. Shoenberg, Jr.
Mr. Wilson D. Child
Mrs. Eugene Darst
Mr. Robert McN. Cochran
Mr. and Mrs. John K. Wallace, Sr.
Greg Cone's Mother
Mr. and Mrs. Brent Stansen
Mrs. Gertrude Conrades
Mr. and Mrs. C. Robert Pommer
Mary and Bob Woods
Mrs. Emma H. Cook
Mr. Charles F. Cook
Lino B. Corno
Mr. and Mrs. Willie L. Ferrell
Mrs. Jack R. Turner
Judge Frank Cottey
Leonard and Priscilla Davis
Mr. Donald L. Coursey, Sr.
Mr. and Mrs. Dean H. Kropp
Mrs. Vera Hermann Cox
Mr. and Mrs. W. F. Scott, Jr.
Mrs. Heather Crawford
Mr. and Mrs. Donell J. Gaertner
Mrs. Betty V. Schramm
Lisa Ellen Crawford
Her Friends
Mrs. Ruth DeFabio
Miss Olivia Beckerle
Miss Vera Ulbricht
Mr. Douglas Lee Drehmann
Mrs. Joseph A. Richardson
Mrs. Wilber Duenke
Mr. and Mrs. Harold W. Bonacker
Mr. Carl Edling
Dr. and Mrs. Dee W. Pulsipher
Mr. Roy Erfurth
Mrs. Frances Kantor
Mr. Fred J. Rock
Mr. August Erker
Mr. and Mrs. Warren M. Shapleigh
Mrs. Marie Finch
Mrs. Judy Ann Fogarty
Mrs. Helen Fishel
Mr. and Mrs. Bill Eastman
Mrs. Mildred Galloway
Mr. and Mrs. Max W. Hurtgen
Mr. Alan Godlewski
Mr. and Mrs. Harry T. Bussmann III
The Greater St. Louis Iris Society
Mrs. Edna Graf
Mr. and Mrs. Franklin J. Cornwell, Jr.
Mrs. Franklin J. Cornwell, Sr.
Mr. Sam Greenblatt
Mr. Bernard Barken
Mrs. Jocelyn Barken
Mr. Andrew Grote
Mr. and Mrs. William A. Frank
Mr. and Mrs. Dean H. Kropp
Mrs. Richard Hardcastle, Sr.
Mr. and Mrs. Robert C. Garrett
Mrs. Fritzi Tanzer
Mrs. Edith Hart
Early Education Center Friends
Mrs. Katherine H. Hedley
Mr. and Mrs. Carl H. Fischer
Dorcas Hernandez
Judith Connett
Carl Germain
Lenore Jones
Gordon Philpott
Mr. Bill Higginbotham
Mr. and Mrs. James A. Martin
Barbara Hinrichs
Family and Friends
Mrs. Catherine Grady Horine
Mrs. Herman Bowmar
Timothy Joseph Horrell
Continental Baking Company
Ralston Purina Company
Mrs. Bernice Hougland
Mr. and Mrs. John B. Allison
Anonymous
Mr. and Mrs. Edward E. Blake
Mr. and Mrs. Alan C. Bowling
Mr. and Mrs. Charley Cowsert
Loretta Davidsen
Mr. Kurt A. Hougland
Mr. and Mrs. Walter Judd
Mr. and Mrs. Robert F. King
MASSCOMP
Mr. and Mrs. Warren May
Mr. and Mrs. John McElligott
Mr. and Mrs. Milton A. Morton
Mr. and Mrs. Michael Petersen
Mrs. Renee Tilley
Mr. and Mrs. George W. Vollmer
Mrs. Mildred Hull
Mr. and Mrs. Robert D. Rich
Mrs. Irene Inman
Mrs. Alfred C. Korte
Valerie Thorp
Mrs. A. Clifford Jones
Mr. and Mrs. J. A. Baer II
Mr. and Mrs. Joseph H. Bascom
Mr. and Mrs. Jay Engler
Mr. and Mrs. Steven J. Nissenbaum
Mr. and Mrs. James M. Scott
Mr. A. Clifford Jones, Jr.
Ms. Pam A. Akers
Jean Andrews
Mr. and Mrs. S. Charles Baer
Ms. Nancy C. F. Bardenheier
Mr. and Mrs. Joseph H. Bascom
Mrs. Maudie Jo Beck
Mrs. Katharine A. Boos
Mr. and Mrs. James J. Burkemper
Eileen Carlson
Miss Adelaide Cherbonnier
Ms. Rose Church
Mr. Frederick Z. Clifford
Miss Mary F. Clifford
Mr. and Mrs. Morton Clifford
Mrs. Mildred Conner
Dr. and Mrs. Roy R. Cook
Diane Costantino
Mr. and Mrs. Donald Danforth, Jr.
Carol Darnall
Jane L. Dean
Julie Deckert
Ms. Betty J. Demzik
Mr. and Mrs. Edwin Ellston
Donald C. Elsaesser
Mrs. Betty Evans
Federal Reserve Bank of St. Louis
Nancy Ferrillo
Pat Forster
Mr. and Mrs. Lucien R. Fouke, Jr.
Nancy Francis
Mr. and Mrs. Martin E. Galt III
Mary Gartland
Mr. and Mrs. Thomas C. Goltermann
Nancy Gulick
Ms. Sue Haden
Carol Hager
Marybeth Hall, Jr.

continued on next page

Tributes

continued

Ann Hardin
Mr. and Mrs. John C. Heisler
Mrs. Loren A. Hennessey
Mr. and Mrs. Robert T. Hensley, Jr.
Mr. and Mrs. Frederick A. Hermann, Jr.
Mr. and Mrs. J. York Hewitt
Elizabeth Hickel
Ann Holton
Mr. and Mrs. Richard C. Holton
Janet McAfee Inc.
Susan Jansen
Mrs. James L. Johnson, Jr.
Mr. and Mrs. Harold T. Jolley, Jr.
Mr. and Mrs. W. Boardman Jones, Jr.
Mr. and Mrs. Byron L. Kinder
Joanne Kistner
Carol Klein
Mr. and Mrs. Gregory L. Lashley
Lashly, Baer & Hamel
Mr. and Mrs. Paul P. Latta
Laura McCarthy, Inc.
Mary Ann Lee
Mr. Frederick W. Lehmann
Mrs. Theodore H. Liebig
Mrs. John K. Lilly
Mr. and Mrs. Charles F. Limberg
Carolyn W. Losos
Ms. Kay E. Mallett
Valerie Mannion
Maxine C. Mason
Mrs. Frank Mayfield, Jr.
Mr. and Mrs. Charles N. McAlpin
Mr. and Mrs. Lansden McCandless, Jr.
Mr. James S. Medart
Mr. and Mrs. Thomas C. Melzer
Judy Miller
Charles and Adele Mills
Mrs. Eleanor J. Moore
Mr. and Mrs. John W. Moore
Mr. and Mrs. Malcolm Morrison
Dessa Morrow
Pat Naumann
Anita Newport
Mr. and Mrs. W. R. Orthwein, Jr.
Miss Marye B. Otto
Joyce Pass
Mr. and Mrs. William J. Phelan
Nancy Pool
Mary Rassieur
Kathryn Reese
Mr. and Mrs. Thomas R. Remington
Mr. and Mrs. George Robinson
Amey Rodgers
Nancy Rodgers
Nancy Rohan
Mr. and Mrs. Lawrence K. Roos
Beatrice Rothberg
Mrs. Clifford Saxton
Judith S. Scallet
Mr. and Mrs. Daniel L. Schlafly
Syble Schlosser
Mr. and Mrs. James M. Scott
Ellen Sedgwick
Mr. and Mrs. Warren M. Shapleigh
Mr. and Mrs. John Shepley
Margaret Shepley
Mr. and Mrs. James A. Singer
Mr. and Mrs. Robert Brookings Smith
Stifel, Nicolaus & Company, Inc.
Mr. John P. Stupp
Mary Frances Sudholt
Mrs. Julia W. Terry
Edwards L. Thaman
Ted Thornhill
Georgia Tobias
Mrs. Donald H. Webb
Ann Wetzel
Mr. and Mrs. Geo. P. Whitelaw, Jr.
Dr. and Mrs. James R. Wiant
Edna Woelfle
Felicity Wohltman
Mr. and Mrs. Randolph Wohltman
Dr. Thomas A. Woolsey
Mr. H. E. Wuertenbaecher, Jr.

Reverend General Jones
Mrs. Alice Beffa Erdelen

Mr. Bernard Kaplan
Mr. and Mrs. Leonard Kantor
Mr. Fred J. Rock

Mr. William Kenny
Mrs. C. H. Bley

Mrs. Helen Kleefisch
Mr. and Mrs. D. L. Meek

Marilyn Knefel-Hillengas
Broadway Oyster Bar Employees

Mrs. Mary Koch
Mrs. Sylvia B. Eirten

Mr. Harry G. Koerber
Mr. and Mrs. John Hallett

Mr. Wesley Konering
Dr. Donald Flanagan

Mrs. Josephine M. Kuhlmann
Ms. Shirley Flatley

Dr. Laager
Mrs. Kenneth C. Baker

Mr. Edward C. LaFon
Mr. Clifford Lecoutour
Mrs. Hermann F. Spoehrer
Mr. and Mrs. Robert P. Tschudy
Mrs. Fred Wulfing

LaVerne's Mother
Mr. and Mrs. Donald R. Hemmer

Mr. Gary Lee Lawson
Alta Lawson
Ami S. Lawson
Donna L. Lawson
Nathan D. Lawson
Cameron Monk
Jennifer Monk

Mr. Willard Levy
Dr. and Mrs. James Bush
Mr. and Mrs. Charles J. Cook
Mrs. Robert H. Kittner
Dr. and Mrs. Peter H. Raven

Mrs. Emily Kimball Lilly
Mrs. Harry Bohnett
Mr. and Mrs. Donald L. Manion
Mr. and Mrs. Martin Marecek
Dr. and Mrs. A. C. Trueblood, Jr.
Mrs. Sigrid Woltzen
Mr. and Mrs. David Wrisley

Mr. Claxton Allen Long
Mr. and Mrs. John K. Wallace, Sr.

Joyce Lynch
Mr. and Mrs. George Herbst, Jr.

Mr. Chester Malon
Mrs. Joan Corwin

Mrs. Mildred Mark
Mr. and Mrs. Lester R. Adelson
Mrs. Henry L. Freund

Mrs. Marie Markus
Mrs. Edmund A. Luning

Dr. Richard Maxwell
Mr. and Mrs. J. William Flaig
Dr. and Mrs. Robert W. Kelley
Missouri Botanical Garden Guides
Mr. and Mrs. George B. Sloan
Mr. and Mrs. A. C. Stutsman

Mrs. Leroy McDonald
Mr. and Mrs. Melville Dunkelman
Rosenthal Family

Mr. Ron Mermoud
Mr. and Mrs. T. W. Dougherty

Grace Miles
Brentwood Garden Club #1

Mrs. Jeanette Miller
Mr. and Mrs. Joe D. Tucker, Jr.

Mrs. Stan Morse
Mr. and Mrs. Edgar V. Dickson

Mrs. Stratford Lee Morton
Mrs. Mary Ellen Young

Nancy Bowen Murphy
Mr. and Mrs. John G. Goessling

Mr. Clyde W. Myles
Marymae R. Hale

Mr. and Mrs. Clyde Myles
Mrs. S. M. Spencer

Mrs. Dorothy O'Daniel
Mrs. Robert H. Kittner

Mr. James D. O'Hara
Mrs. William H. Leyhe, Jr.

Mr. Fred Olde
Mr. and Mrs. Robert D. Rich

Mr. Roland Orf
Mr. and Mrs. Lawrence P. Badler

Mr. Victor Pacewic
Mr. and Mrs. Lawrence P. Badler

Ryan Pardeck
St. John's Neo-Natal ICU Staff

Jane Parks-Clifford
Mr. and Mrs. Malkom G. Jackoway

Mary Elizabeth Bowman Peters
Mr. and Mrs. James G. Alfring
Mrs. Irene L. Bergh
Mrs. Jean-Jacques Carnel
Mr. and Mrs. Thomas R. Collins, Jr.
Mr. and Mrs. Bertram B. Culver, Jr.
Mr. and Mrs. Edgar V. Dickson
Mr. William A. Frank, Jr.
Mr. and Mrs. John O. Felker
Mr. and Mrs. Charles W. Freeman
Mr. and Mrs. John G. Goessling
Mr. and Mrs. Richard T. Grote
Mr. and Mrs. Frank L. Key
Mr. and Mrs. John K. Lilly
Mr. and Mrs. Charles F. Limberg
Mr. and Mrs. William F. Reck, Jr.
Dr. and Mrs. Ernest T. Rouse III
Mr. and Mrs. Edwin G. Russell
Mr. and Mrs. John Shepley

Mr. Thomas P. Postol
Mr. Peter A. Postol

Mr. Robert J. Poteet
Mr. and Mrs. Charles W. Freeman
Mr. and Mrs. Michael C. Walther

Mr. Alexander Timon Primm
Mr. and Mrs. Thomas R. Collins, Jr.
Mr. and Mrs. Bertram B. Culver, Jr.
Mr. Fielding Lewis Holmes
Mr. and Mrs. John R. Robinson
Mr. and Mrs. Lou Stockstrom

Mrs. Mary Watson Roos
Mrs. Lilly Ann Abraham
Mr. and Mrs. Harry Andrews
Mr. and Mrs. Joseph Arndt, Jr.
Auto Club of Missouri—Officers and Directors
Mr. and Mrs. J. A. Baer II
Mr. and Mrs. Melvin S. Barad
Mr. and Mrs. Clarence C. Barksdale
Mr. and Mrs. Andrew H. Baur
Mrs. Irvin Bettman, Jr.
Mrs. William Bixby, Jr.
Mr. and Mrs. Allen M. Borucke
Mr. and Mrs. J. J. Brouk
Brown Group, Inc., DeLiso Division
Mr. and Mrs. Robert R. Cave
Centerre Bancorporation—Officers and Directors
Centerre Trust Company
Mr. and Mrs. Thomas R. Collins, Jr.
Mr. and Mrs. Bertram B. Culver, Jr.
Mr. and Mrs. Donald Danforth, Jr.
Mr. and Mrs. Thomas S. Darnall, Jr.
Mr. and Mrs. John Dubuque
Mr. and Mrs. Melville Dunkelman
Mr. and Mrs. Ernest A. Eddy, Jr.
Mrs. Harry Esserman
Mr. and Mrs. Clifford E. Fluri
Mr. and Mrs. Harris J. Frank
Mr. and Mrs. William A. Frank
Mr. and Mrs. Fredric S. Freund
Mrs. Henry L. Freund
Mrs. Michael W. Freund
Mr. and Mrs. S. E. Freund
Mary Ann Garvin
Mr. and Mrs. Ben Glassman
Ms. Joanie Glassman
Mr. and Mrs. Fred Goldberg
Mr. Clark V. Graves
Mr. and Mrs. W. Ashley Gray, Jr.
Mr. and Mrs. Edward Greensfelder
Mrs. Harry Greensfelder, Jr.
Mr. and Mrs. W. L. Hadley Griffin
Kelly L. Hadfield
Mr. and Mrs. Hord Hardin II
Mr. Lewis T. Hardy
Mrs. Paul Hatfield
Mrs. Peggy Hellman
Mr. and Mrs. Oliver W. Hickel, Jr.
Mr. and Mrs. Philip N. Hirsch
Mr. John M. Hull
Mr. and Mrs. Peter H. Husch
Mr. and Mrs. Stanley F. Jackes
Mrs. Jane A. Jacobs
Mr. and Mrs. Harold T. Jolley, Jr.
Mr. and Mrs. Edwin S. Jones
Mr. and Mrs. Robert McK. Jones
Mr. and Mrs. W. Boardman Jones, Jr.
Mr. and Mrs. Roy W. Jordan
Mrs. Alberta S. Kalish
Dr. and Mrs. Maurice J. Keller
Mr. and Mrs. Joseph L. Krechel
Mr. and Mrs. Edwin A. Kurtz
Laclede Steel Company
Ladue Garden Club
Mr. and Mrs. Oliver M. Langenberg
Mr. and Mrs. Brainerd W. LaTourette, Jr.
Mr. and Mrs. E. Desmond Lee, Jr.
Mrs. John D. Levy
Mr. and Mrs. John K. Lilly
Mr. and Mrs. Gerald W. Lindhorst
Mr. and Mrs. Al S. Loeb
Mrs. Benjamin Loeb
Mrs. Harry W. Loeb
Mr. and Mrs. Jerome T. Loeb
Mr. and Mrs. Stephen H. Loeb
Mr. and Mrs. Roger E. Lord, Jr.
Mr. and Mrs. John Peters MacCarthy
Mr. and Mrs. W. H. Macon
Mr. and Mrs. Kenneth A. Marshall
Mrs. James S. McDonnell, Jr.
Mr. and Mrs. James E. McKee III
Mr. and Mrs. Bernard Mellitz
Mr. and Mrs. Thomas C. Melzer

Midas' Daughters Investment Syndicate
Mrs. Hubert C. Moog
Mr. and Mrs. James R. Moog
Mr. and Mrs. Ralph A. Morriss II
Mr. and Mrs. Sol Morton
Mr. and Mrs. Edward E. Murphy, Jr.
Neighbors and Friends in Tirrill Farms
Ms. Diane Odorizzi
Mr. and Mrs. William R. Orthwein, Jr.
Mr. Raymond Turner Peters
Mrs. G. K. Presberg
Mr. and Mrs. Edmund J. Pung
Mr. and Mrs. Louis R. Putzel
Mr. and Mrs. Paul T. Putzel
Mr. and Mrs. Robert H. Quenon
Gerald A. Rimmel
Mr. and Mrs. George S. Rosborough, Jr.
Mr. and Mrs. Thomas Rosen
Mr. and Mrs. Harry S. Rosenberg
Mr. and Mrs. Richard B. Rosenthal
Mr. Jeffrey Ross
Dr. and Mrs. Ernest T. Rouse III
Mr. and Mrs. Charles M. Ruprecht
Mr. and Mrs. Joseph F. Ruwitch
St. Louis Country Day School
Dr. and Mrs. Llewellyn Sale, Jr.
Mr. and Mrs. Edward R. Samuels
Dr. and Mrs. William F. Sasser
Mr. and Mrs. Nicholas Scharff II
Mr. and Mrs. Henry T. Schlapp
Schnuck Markets, Inc.
Mr. and Mrs. F. Carl Schumacher
Mr. and Mrs. Arnold H. Schwab
Dr. and Mrs. William G. Sedgwick
Mrs. Ben H. Senturia
Mr. and Mrs. Warren M. Shapleigh
Mr. and Mrs. John Shepley
Mr. and Mrs. Edwin G. Shifrin
Mrs. Helen G. Shifrin
Mr. and Mrs. Robert H. Shoenberg
Mr. and Mrs. Sydney M. Shoenberg, Jr.
Mr. and Mrs. James A. Singer
Mr. and Mrs. Tom K. Smith, Jr.
Mrs. William H. L. Smith
Southern Foundation, Inc.
Mr. and Mrs. Edwin J. Spiegel, Jr.
Mr. and Mrs. Douglas C. Sproull
Mrs. Florence G. Stern
Mr. and Mrs. Walter G. Stern
Mr. Henry S. Stolar
Ms. Cindy Sweet
Mr. and Mrs. Gerald Tessler
Mr. and Mrs. Harold E. Thayer
The Woman's Exchange Board
Mr. and Mrs. Monte C. Throdahl
Mr. Jim Townsend
Mr. and Mrs. Percy Tucker
Mr. Richard E. Turner
Mr. and Mrs. Robert G. Watel
Mr. and Mrs. David S. Weddell
Mr. Richard K. Weil
Mr. and Mrs. Geo. P. Whitelaw, Jr.
Mr. and Mrs. Eugene F. Williams, Jr.
Mr. and Mrs. Stephen Zwick

Mr. August S. Roth
Mr. and Mrs. Charles Baker, Jr.

Mr. Frank Ruff
Mrs. William H. Leyhe, Jr.

Lucy and Lloyd Rutledge
Mr. and Mrs. Earl E. Eberhardt

Mrs. G. J. Samuelson
Mr. and Mrs. Basil C. Cole
Dr. Robert L. Cole
Mr. William G. Cole
Ms. Sandra Lund

Ethel Schaefer
Mr. Harry E. Wuertenbaecher, Jr.

Mrs. Loretta Schreiner
Miss Erna Doelling

Sharon Scullin
Mr. and Mrs. John A. Smalley

Mr. A. W. Shapleigh, Jr.
Mr. and Mrs. John Brodhead, Jr.

Mrs. Bunny Shelton
Russell Ainsworth
Ms. Mary E. Blackburn
John Brophy
Miss Adelaide Cherbonnier
Sally Bixby Defty
Mr. and Mrs. Albert F. Dorey
Mr. and Mrs. Charles S. Drew, Jr.
Robert W. Duffy
Mr. and Mrs. Rollin B. Fisher
Ellen Gardner
Mr. Evarts A. Graham
David Grossman
Sid Grossman
Mr. and Mrs. Raymond T. Gunter
Carolyn Kingcade
Dr. and Mrs. William S. Knowles
Mrs. Charles W. Lorenz
John M. McGuire
Mr. and Mrs. William B. McMillan, Jr.
James Millstone
Ron Norton
Bob Posen
George and Kathy Richardson
Robert K. Sanford
Dale Singer
Pat Tummons
Roland Walkenhorst
Washington Bureau— St. Louis Post-Dispatch
Ronald Willnow
William F. Woo

Vera Shive
St. Louis Coke & Foundry Supply Co.

Mr. Howard Simpson
Mrs. Walter M. Janes

Mr. George W. Skinner
Mr. and Mrs. J. Marion Engler
Mr. and Mrs. William A. Frank
Mr. and Mrs. Ben F. Hickman
Mrs. E. R. Hurd, Jr.
Mr. and Mrs. Stuart M. Mertz
Dr. and Mrs. John Skinner

Chester P. Skwiot
Mrs. Chester P. Skwiot
Mrs. Carl H. Sparenberg

Mrs. Anna Smyser
Mrs. Irene L. Bergh

Mr. Louis D. Stedelin
Miss Margaret Pape

Mr. Otto Steger
Mr. and Mrs. Richard B. Rosenthal

Mrs. Luevenia Casey Stewart
Mrs. Ollie Tucker Ward

Dr. Julian A. Steyermark
Mrs. Virginia L. Beatty
Mr. and Mrs. Wesley H. Fender
Mr. and Mrs. Lisle Jeffrey
Mr. David T. Jordan
Dr. and Mrs. John M. MacDougal
Dr. William Meijer
Dr. and Mrs. Peter H. Raven
Dr. Paul L. Redfearn, Jr.
Mr. Brian P. Ritter
Mrs. Victoria C. Simmons
Dr. and Mrs. James K. Turner
Mr. and Mrs. John E. Wylie

Mr. Al Strassburger
Ms. Anna Lee Brown
Mrs. Leonard Landsbaum

Mrs. Joseph Sunnen
Mr. and Mrs. Charles M. Babington, Jr.
James and Nancy Berthold
Mr. and Mrs. Jack R. Bodine
Mr. Richard G. Camp
Mr. and Mrs. Charles B. Haverstock
Mr. and Mrs. William D. Hollis
Mr. and Mrs. Sydney Jacobs
Mr. and Mrs. John Patton
Mr. Gerald F. Pauley
Mr. and Mrs. Rudyard K. Rapp
Phyllis Rosenbloom
Mr. and Mrs. Charles C. Sisler

Mrs. Judith Hunter Terry
Mr. R. J. Sauget

Mr. Harold E. Theper
Miss Colette Kreienbaum
Miss Mary Ann Kreienbaum

Mr. Joseph J. Thomas
Ms. Alice M. Ziemann
Jenny, Glenn and Grandma Ziemann

Mrs. Marge Tober
Mr. and Mrs. Paul T. Putzel

Mrs. Edna Trihey
Leon E. Ruh Family

Mrs. Waller
Mrs. Sue Clubb

Andrean Everding Wells
George and Laurine Everding
George Everding, Jr.
Lucille Guise
John and Kathy Kurz
Maureen O'Day
Debbie Wells
Tom and Barbara Wells
Tom and Stephanie Wells

Mother of Mrs. Vernon Wendt
Mr. and Mrs. Lester R. Adelson

Edythe Wengell
Susan Sperry
St. Louis Science Center

Leroy Winingham
Friends of Sandra Shaner— Bi-State Development Agency
Mr. Thomas Sehr

Mrs. Hester Wolf
Mr. Jack Ansehl

Mr. Jeffrey M. Yost
Church of St. Michael and St. George— The Church Service League
Mrs. Duncan I. Meier, Jr.
Mr. William P. Morgan, Jr.
Mr. and Mrs. Keith D. Shaw

Robert Speed Young
His Family

Dr. Theodore Saunders Zahorsky
James T. Kurten
Mr. and Mrs. Nicholas S. Kurten
Peter S. Kurten
Robert J. N. Kurten

Mr. Arthur Ziern
Dr. and Mrs. Antonio I. Longrais

Board of Trustees

Mr. John H. Biggs
President
Dr. Marguerite Ross Barnett
Mr. Joseph H. Bascom
Rev. Lawrence Biondi, S.J.
Mr. Gerald D. Blatherwick
Mr. Stephen F. Brauer
Mr. William H. T. Bush
Mr. Jules D. Campbell
Dr. William H. Danforth
Mr. Robert R. Hermann
Rt. Rev. William A. Jones, Jr.
Mr. David W. Kemper
Mr. Charles F. Knight
Mr. Robert E. Kresko
Mr. William E. Maritz
Mr. James S. McDonnell III
The Hon. Gene McNary
Mr. Lucius B. Morse III
Mrs. Fred A. Oberheide
Mr. William R. Orthwein, Jr.
Mrs. Vernon W. Piper
Mrs. Lucianna Gladney Ross
Dr. Howard A. Schneiderman
The Hon. Vincent C. Schoemehl, Jr.
Mr. Sydney M. Shoenberg, Jr.
Mr. C. C. Johnson Spink
Mrs. Walter G. Stern
Dr. Joyce M. Thomas
Mr. John K. Wallace, Jr.
Mr. O. Sage Wightman III

EMERITUS TRUSTEES
Mr. Howard F. Baer
Mr. Clarence C. Barksdale
Mr. Sam'l C. Davis
Dr. Thomas S. Hall
Mr. Henry Hitchcock
Mrs. Anne L. Lehmann
Mr. Joseph F. Ruwitch
Mr. Louis S. Sachs
Mr. Daniel L. Schlafly
Mr. Warren M. Shapleigh
Mr. Robert Brookings Smith
Mr. Tom K. Smith, Jr.
Mrs. Harriet Spoehrer
Mr. Harry E. Wuertenbaecher, Jr.

MEMBERS' BOARD
Mrs. Henry W. Dubinsky
President
Mrs. Rudyard K. Rapp
First vice president
Ms. Elaine A. Alexander
Second vice president
Mrs. Robert P. Elsperman
Secretary
Mr. Frederick H. Atwood III
Treasurer

DIRECTOR
Dr. Peter H. Raven

The
CAMPAIGN
for the Garden

The Climatron's Plexiglass dome has been replaced by more than 2,400 laminated glass panes containing an interlayer of Saflex plastic, manufactured and generously donated to the Garden by the Monsanto Company. Using laminated glass in the dome will contribute to the Climatron's energy efficiency.

UPDATE: As of November 18, 1988, the Garden's $16 million fundraising campaign had raised $13,700,223 in gifts and pledges.

This fall the capital campaign celebrated two milestones. In mid-October, the drive passed the $13 million support mark on the way to its $16 million goal. Then, on October 26, workmen installed the last glass pane in the new glazing subframework erected beneath the Climatron's historic geodesic dome.

With the glazing now complete, work will proceed on the Climatron's complete interior renovation.

Generous gifts from Mrs. Hermann Spoehrer and the Shoenberg Foundation, Inc. since October have brought the drive's fundraising to its current level. "We're delighted to have reached this important milestone in 1988, and with the continuing support of the Garden's friends, we're confident of success," said Robert E. Kresko, the steering committee chairman.

Help the Garden Grow

From the *St. Louis Post-Dispatch*, November 22, 1988

For most of us, topics like the disappearing rainforests and the greenhouse effect may seem far away. But scientists who are making progress in studying and solving these crucial problems have an important laboratory for their work right in St. Louis: the Climatron at the Missouri Botanical Garden. This well-known symbol of the Garden is being refurbished so that its windows will let in as much light as necessary without the leaks and condensation that have hurt plants in the past. But the project needs help.

Last April, the Kresge Foundation of Michigan issued a challenge grant to Shaw's Garden: $650,000 for renovation of the Climatron, contingent on the Garden's raising $1.7 million on its own to complete the project. Since then, more than $1 million has been raised, but the campaign still has another $650,000 to go by next fall.

The pleasures of a day at Shaw's Garden are many, and they are not expensive to enjoy. But they are expensive to maintain, both for the casual visitor and for the scientists engaged in the Garden's path-breaking research. Its reputation for and commitment to excellence do not come cheap, and the problems it is trying to help solve are serious. Not everyone can do the scientific exploration necessary to help save rainforests or combat the greenhouse effect. But those who cannot contribute expertise can contribute money to fund it. Help the Garden reach its goal—for the rainforests, for everyone.

—Reprinted by permission of the *St. Louis Post-Dispatch*

ISSOURI BOTANICAL GARDEN BULLETIN (ISSN-0026-6507)
.O. Box 299
aint Louis, Missouri 63166

SECOND CLASS
POSTAGE
PAID
AT ST. LOUIS, MO

ENTENNIAL
oard of Trustees
889 1989
issouri Botanical Garden

QK1
.M593

Missouri Botanical Garden Bulletin

MARCH /
APRIL
1989

VOLUME LXXVII
NUMBER TWO

Inside This Issue

4 **History of the Board of Trustees**
Part One: 1889 to 1901. In this centennial year, we take a look at the people and events that shaped the Garden's development.

7 **Environment Achieves International Recognition**
Earth is named "Planet of the Year".

8 **Home Gardening**
Everything you need to know about starting seedlings.

9 **Gardening at the Garden**
Pollination by birds, bees and other agents.

10 **Research News**
Affiliated scientists enrich the Garden's research program; conservation in Madagascar.

12 **Calendar of Events**
Spring is blooming with exciting events and activities.

14 **Ask the Answer Service**
It's time to gear up for the growing season.

15 **From the Membership Office**
New Board members and officers are elected.

17 **Planned Giving Seminar**
A new department debuts with a program on wills.

20 **Campaign Update**
The capital campaign meets the Kresge challenge grant.

On the cover: The Japanese Garden comes alive in springtime.
—Photo by Pat Watson

1989 Missouri Botanical Garden.

The BULLETIN (ISSN 0026-6507) is published bi-monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, MO 63110. Second class postage paid at St. Louis, MO. Subscription price $12.00 per year. $15.00 foreign.

The BULLETIN is sent to every Member of the Garden as one of the benefits of membership. For a contribution of as little as $40 per year, Members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and for course fees; and the opportunity to travel, domestic and abroad, with other Members. For information, please call (314) 577-5100.

Postmaster: send address changes to Susan Wooleyhan, editor, BULLETIN, P.O. Box 299, St. Louis, MO 63166.

Comment

Spring Activities

Spring is the Garden's most colorful season and I hope every Member will find an opportunity to visit during March, April and May. In early March the Garden's spring flower show will open, and this year's plans are unique and quite exciting. With an old-fashioned garden centered around a gazebo as the theme, the show features snapdragons, pansies, fragrant stock and flowering shrubs including lilacs and crabapples. The show will open to the Members on Friday, March 10 (See p. 12). Our outdoor display gardens promise beauty and color for everyone to enjoy during spring.

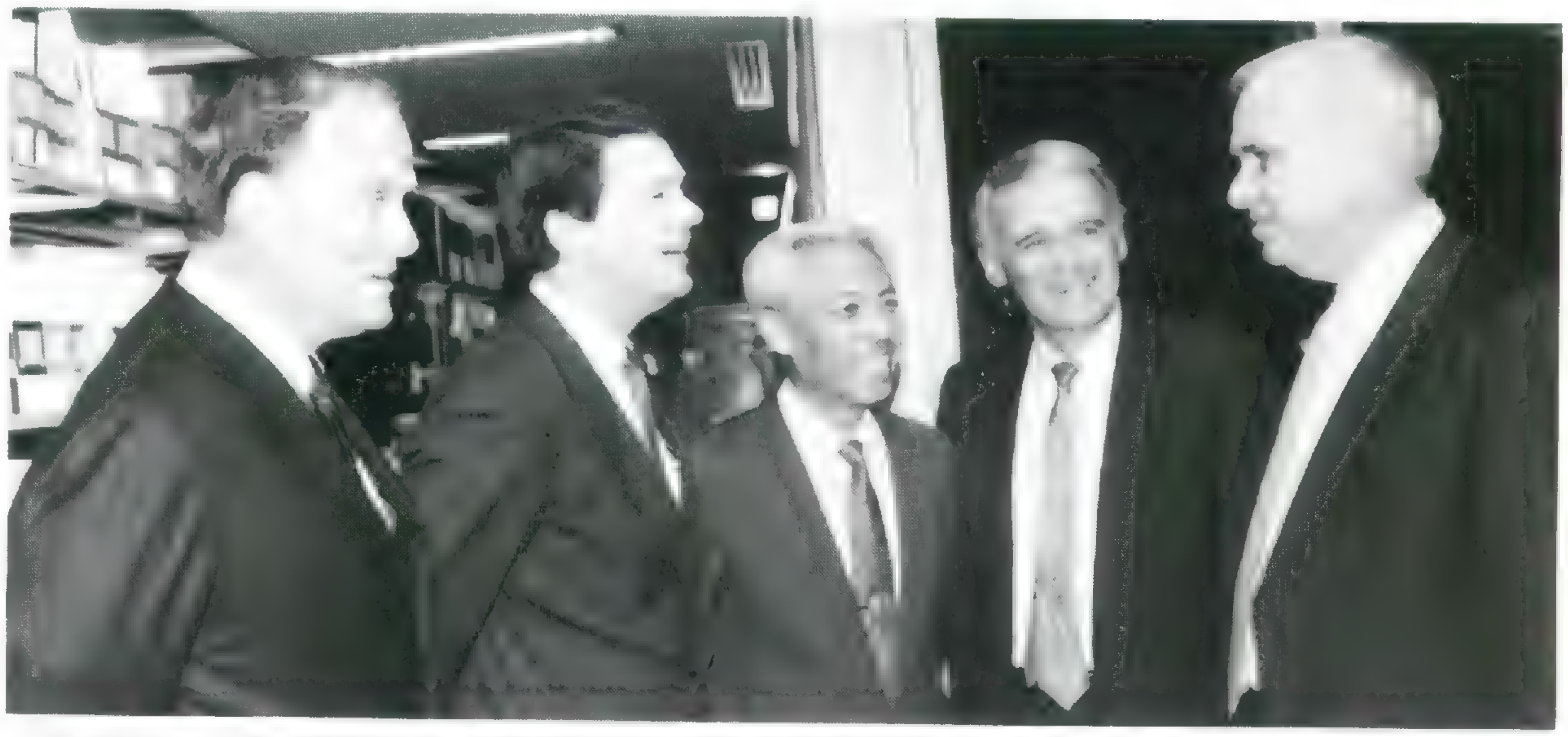
Beyond the floral displays, the Garden's education division will be working on plans to open a Middle Investigative Learning Center as part of the St. Louis Public School's Magnet School Program. This investigative learning center will provide a full academic program for 6th, 7th, and 8th graders with a special emphasis on environmental sciences. Our education programs presently reach more than 100,000 children and adults and the creation of the Missouri Botanical Garden Investigative Learning Center allows us to become more responsive to student needs.

In our capital campaign efforts, the interior renovation of the Climatron is well underway and we are beginning to review and finalize the educational exhibits that will be part of the Climatron complex. At the conclusion of 1988 the Garden had raised over $14 million, and we are hopeful that we will be able to exceed the $16 million goal. The support from our membership, corporations, and foundations has been exceptional, and we are encouraged by such a continued strong showing of community support.

A backstage Garden tour will be offered in March, giving Members a special opportunity to view facilities not regularly open to the public. This includes the library and herbarium and other research facilities in the Lehmann Building. Beginning on May 7 the Garden will host the second Fragrance Week, which was introduced in 1988 as the Fragrance Festival. This special celebration of scent will be sponsored by Famous-Barr Department Stores, and I encourage you to watch for additional information about all of the activities from May 7 through Mother's Day, May 14.

I look forward to your involvement in all of our spring activities.

Peter H. Raven



CHINESE AMBASSADOR VISITS: Han Xu, the Chinese ambassador to the United States, visited the Garden on January 22 as part of St. Louis' Chinese Cultural Festival. Shown (left to right) are Robert E. Kresko, president of the Board of Trustees; Mayor Vincent C. Schoemehl; Ambassador Han Xu; County Executive Gene McNary; and Dr. Peter H. Raven. The Garden is the U.S. coordinator for the Flora of China, a cooperative project with the People's Republic of China.

BOARD OF TRUSTEES' ANNUAL MEETING/*New Officers Elected*

FAR LEFT: John Biggs (left) and Robert Kresko.

LEFT (left to right): Robert Kresko, John Biggs, Sage Wightman, Peter Raven.

THE Garden's Board of Trustees held its annual meeting on Thursday, January 5, and elected Robert E. Kresko as president, O. Sage Wightman III as first vice-president, and John K. Wallace Jr. as second vice-president. The Board also paid tribute to John H. Biggs, who is retiring after serving with distinction as president since January, 1984. Mr. Biggs, who joined the Board in June, 1983, was named an Emeritus Trustee of the Garden.

Mr. Biggs presided over the Board during a period of unparalleled activity at the Garden. The first challenge was planning for expenditure of the new property tax support approved by voters in 1983. The tax revenues provided needed funds for education and horticulture. "While this tax support has been a wonderful asset to the Garden, we still have a long way to go to develop facilities and programs," Biggs said.

During Biggs' tenure the Garden also faced the challenge of organizing its current $16 million capital campaign. The Campaign for the Garden was launched in the spring of 1987, and it has received outstanding support from all sectors of the community (see page 20).

The role of the Garden in the St. Louis community has expanded greatly in the past five years. "The Garden now is seen as a major research institution, and we have shown steady progress and success in making people aware of the educational programs available to the community. The perception is clearly that the Garden is an exciting place to visit," Biggs said.

Biggs commented that his role at the Garden, and his strong working relationship with Dr. Raven, have enriched his life immeasurably. While he would have liked to have seen the completion of the capital campaign during his presidency, he feels that the Garden has developed a good plan for utilizing the new revenues and achieving the campaign's objectives.

Director Peter H. Raven thanked Biggs for his dedication to the Garden and the St. Louis community. Raven said, "John Biggs provided this institution a clarity of leadership and a depth of professionalism that is rare. We are sorry he is leaving our community, but we will continue to benefit from his counsel."

Mr. Biggs, a native St. Louisan, is leaving to head TIAA/CREF, the largest pension system and the fifth largest insurance company in the United States, with $70 billion in assets. Based in New York, it serves educational and non-profit institutions, with more than one million members in the U.S. Mr. Biggs was president of Centerre Trust Company (1985-88), and vice chancellor for administration and finance at Washington University (1977-85).

Robert Kresko, the new president of the Board, serves as Group Managing Partner of Trammell Crow Company with responsibilities for real estate developments in Tennessee, Arkansas, Alabama, Mississippi, Georgia, and Florida. He has worked in the real estate industry since 1961 and from 1961 through 1967 was associated with the Bakewell Corporation. In 1967 he joined the Trammell Crow Company.

Kresko is a graduate and trustee of Brown University, serves as a director of the Cypress Fund, as a director of Boatmen's Centerre Trust Company, and of the Nooney Real Estate Trust. He is a past director of the RCGA and of the Providence Program.

A Garden Trustee since 1981, Kresko served first as chairman of the Henry Shaw Annual Giving Fund and assumed leadership of the capital campaign in 1987. He is proud of the generous response the campaign has received from both corporations and individuals. "We are certain we will reach our goal in the near future, but this is not the end of the story," Kresko said. "When we first met to formulate the outline for this capital campaign, the Garden had well over $20 million in capital and renovation needs. Those other needs still exist and it is my hope that we can go beyond our goal so that we can meet some of these other demands."

Looking to the future, Kresko feels it is of utmost importance to continue to expand the awareness and utilization of the Garden's programs in the St. Louis community. This involves "expanding our work in environmental education and our leadership in finding reasonable and intelligent solutions to the environmental problems facing our community and the world."

In a tribute to his predecessor, Kresko said, "John Biggs has left a positive impact on everything with which he has been associated. He has a terrific mind coupled with good common sense, and he will be missed."

The Board of Trustees also elected Joseph H. Bascom as Emeritus Trustee at the meeting. Stephen F. Brauer and David W. Kemper were named Life Trustees. Gerald D. Blatherwick and Howard A. Schneiderman each was reelected to a four-year term.

In this centennial year of the Garden's Board of Trustees, Samuel B. Hayes, president of Boatmen's Bank, was named a term trustee, continuing a historical precedent. One hundred years ago, Rufus Lackland, then president of Boatmen's Bank, was named to the original Board of Trustees by Henry Shaw's will and was elected as its first president at the initial meeting on September 10, 1889. Also elected as a new term trustee was Andrew C. Taylor, president of Enterprise Leasing Company.

CENTENNIAL
Board of Trustees
1889 1989
Missouri Botanical Garden

EDITOR'S NOTE: Joseph M. Schuster is a former editor of the Bulletin. *He is a freelance writer whose work has appeared in* St. Louis *Magazine,* Sport *Magazine,* Southern Style, *and* USA Today. *Mr. Schuster lives in St. Louis. This history of the Board of Trustees and the growth of the Garden will be published in installments in the* Bulletin *during 1989.*

PART ONE/1889-1901

THE EARLY YEARS

BY Joseph M. Schuster

WHEN Henry Shaw died in the early hours of August 25, 1889, St. Louis lost arguably its most esteemed citizen of the day. He had come to the city from his native Sheffield, England, in 1819, and built a successful business selling hardware and other goods to pioneers and traders who used St. Louis as a launching point for journeys into the American west. Shaw also acquired a fortune in real estate, owning considerable property in the center of St. Louis' business district, as well as the property which is now Missouri Botanical Garden, Tower Grove Park and much of the city's Shaw Neighborhood. At the time of his passing, newspaper accounts speculated his worth was $2.5 million, an astronomical sum in a day in which the $125 a month James Gurney earned as Shaw's gardener was an excellent salary, in which a pound of steak cost 12 cents, a pound of flour 3 cents, and in which some of Shaw's tenants were paying $17 a month rent for two floors in a comfortable house.

During his lifetime, Shaw had been generous to his adopted St. Louis. In 1859, he opened a part of his country estate as a public botanical garden and nine years later deeded Tower Grove Park to the city. Because of his gifts and because of his stature, the entire city went into mourning immediately following his death. Flags flew at half mast and the mayor announced that all city offices would be closed the day of the funeral so that city workers could pay their respects. Shaw's death, the St. Louis *Republic* reported on August 26, 1889, "cast a gloom over this city, which he loved so well and where he erected a monument for himself, not in brass or marble...but in the hearts of a grateful people."

While Shaw had been a life-long bachelor and had no descendents, he did leave behind family, friends and servants, to whom he had been generous during his lifetime. Had Shaw willed his fortune to any or all of these it would not have been surprising.

When the will was made public a week after Shaw's death (at least one newspaper published the nearly 8,000-word document *in toto*), it did include bequests to his friends and family—some quite generous. But it was the people of St. Louis who were the principal beneficiaries, since the will called for the continuation of the botanical garden Shaw had started 30 years earlier.

The Garden would not be given to the city directly, as some speculated it might be, but would be maintained by a permanent Board of Trustees. Shaw had distanced himself from partisan politics during his life, never seeking public office and never, apparently, taking a public stand on the issues of his day, including the Civil War. Presumably, he wanted to keep his Garden outside the direct influence of the vagaries of politics.

The majority of the will, then, concerned itself with the conditions under which the Trustees would govern the Garden: It would be "easily accessible" for visitors, "forever kept up and maintained for the cultivation . . . of plants," and would include as a significant aspect the study of botany. Shaw provided that the Garden should be supported by much of his extensive commercial and residential real estate holdings from which the Trustees would collect rents.

The will even laid out the names of the men who would be the first Trustees. Among the dozen were some of the brightest lights of St. Louis at the end of the last century.

There was Joseph W. Branch, an English immigrant who had been president of the Illinois & St. Louis Railroad. There was Henry Hitchcock II, whose son and grandson would follow him as members of the Board. Hitchcock was one of St. Louis' most eminent attorneys, a founder of the American Bar Association and the man chiefly responsible for the establishment of the Washington University School of Law.

There were Dr. John B. Johnson, a prominent physician and professor of medicine at Washington University; Rufus J. Lackland, president and director of Boatmen's Bank; George A. Madill, Hitchcock's law partner, a former circuit court judge and president of the Union Trust Company; Samuel Treat, a federal judge for 30 years; and James E. Yeatman, president of Merchants' National Bank.

Other Trustees named in the will were M. Dwight Collier, who resigned shortly after his appointment because he had moved to New York; David F. Kaime, Shaw's attorney and long-time friend; and William H. H. Pettus, who would serve one of the longest terms of any Trustee, remaining on the Board until 1922. (Two Trustees named by Shaw, Gerard B. Allen and Adolphus Meier, died before Shaw did.) Shaw also provided for five *ex officio* Trustees—the Mayor of St. Louis, the chancellor of Washington University, the president of the St. Louis Academy of Science, the Episcopal Bishop of Missouri and the president of the St. Louis school board.

The Trustees met for the first time on September 7, 1889, in Lackland's office at Boatmen's Bank. But it was an informal gathering, one at which the Trustees performed no official business and from which no records exist. The seven Trustees at this informal meeting composed and mailed a letter to the remaining seven named in the will, calling for a meeting on the 10th to officially "effect their organization."

Three days after the informal gathering, the Board held its first formal meeting at 4 p.m., on September 10, in Shaw's townhouse at Seventh and Locust. Most of those to whom letters had been sent on the 7th were present. But, Mayor Edward A. Noonan of St. Louis was not. He responded with a letter, stating that as the highest ranking public official in St. Louis, meetings should be held in his office and he refused to attend any held elsewhere. The Board, no doubt adhering to Shaw's implied wish that the Garden remain outside politics, declined to move the meeting. (The Board scheduled its subsequent meetings for the townhouse, and eventually the tiff between the mayor and the Board became so heated that the press started covering it at length.)

The first orders of business were the election of a chairman and agreement to accept the property left them in Shaw's will. As chairman, the Board chose Lackland. While apparently no correspondence remains to explain the choice, the other members may have been moved by the fact that Lackland had proven himself as a capable man under fire; during the dangerous financial panic of 1876, while most other St. Louis banks were on the edge of collapse, Lackland kept many of them solvent using the resources of Boatmen's Bank. Nearly 20 years later, after his death at 91 in 1910, the surviving members of the Board would remember him as "sagacious in his counsels, watchful in his care . . . wise in his suggestions for direction of his associates."

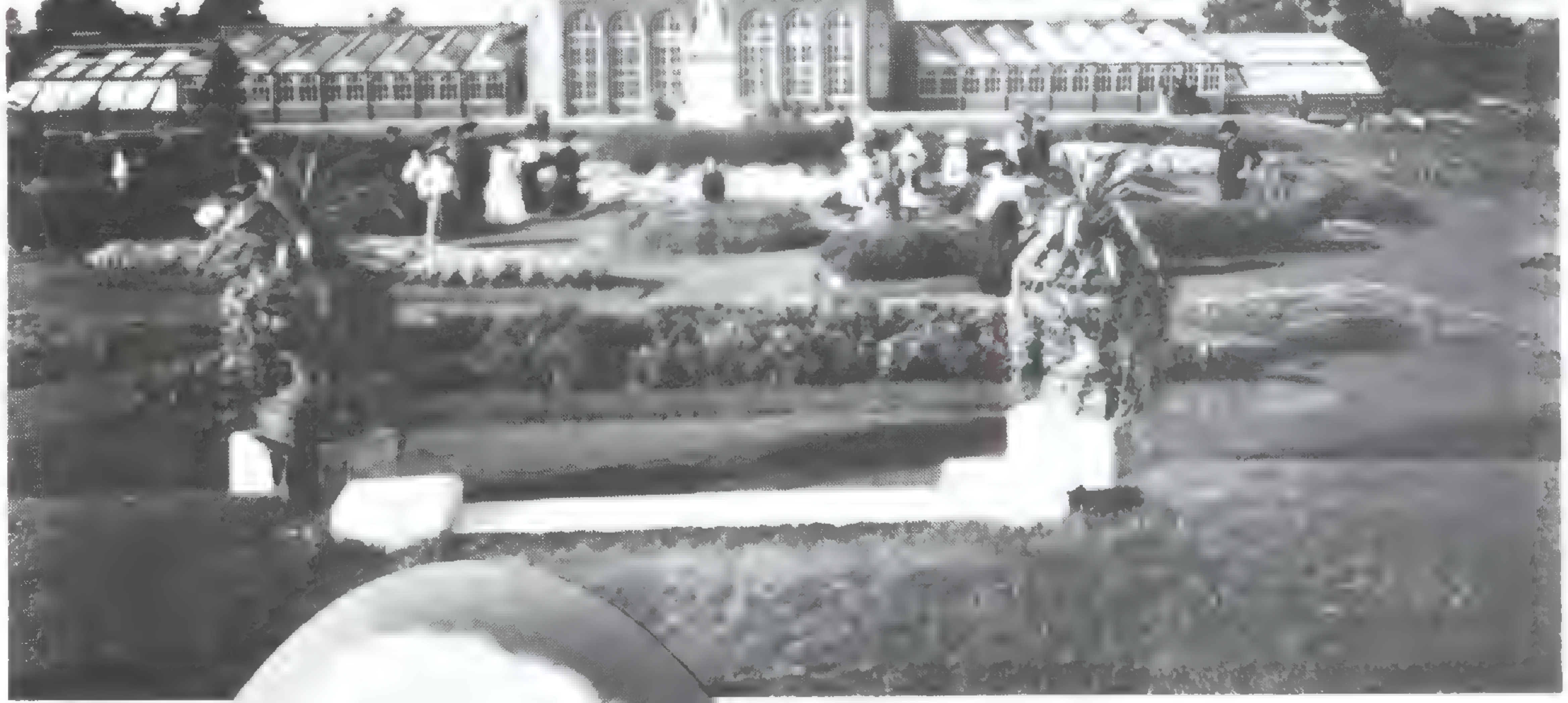
The Board met again the next day, September 11, to choose a director and to establish a committee to plan the permanent organization of the Board. For the position of director, the Board appointed 34-year-old William Trelease, then Engelmann Professor at Washington University's Shaw School of Botany. Henry Shaw, himself, had recruited Trelease for the professorship in 1885 after Asa Gray, the esteemed American botanist and Harvard professor, recommended Trelease as "no more than 30 (but) a model scholar and teacher in Botany." There is evidence that, in appointing Trelease as Garden director, the Trustees were following instructions from Shaw himself: When Gray wrote to Trelease in May 1885 urging him to pursue the Washington University position, he told him, "You might look to succeed the founder as the director of the Garden—not very soon, I hope, but quite as soon as you wish to assume such responsibility."

With the Board established, the president elected and the director appointed, the Trustees set about the work of governing the Garden.

During the early years, governing the Garden meant seeing to repairs and reconstruction. Toward the end of Shaw's life, he was infirm and many of the Garden's features had declined. Woodwork had decayed from exposure to the elements; the walls surrounding the Garden were crumbling; some of the greenhouses were inadequate and in need of repair; Tower Grove House, which had become the director's residence, was found unsanitary by city inspectors; the gravel Garden walks, which used only a thin layer of rock over earth, were unusable in winter. In addition, the first five years the Trustees governed the Garden were extraordinarily dry ones, forcing the Trustees to turn to the City of St. Louis for water, meaning a cost of $2,300 to lay pipe. In the first year alone, the Trustees laid out more than $20,000 for maintenance and repairs to the Garden. And the cost mounted in the years that followed.

In 1892, the Trustees paid out $33,500 to dismantle and reconstruct Shaw's townhouse within the Garden, following terms of his will. There was also the $18,000 the Trustees had to spend to salvage the museum Shaw had built.

In 1896, the Garden suffered exten-



TOP: The Conservatory, built in 1868, was the main display greenhouse until the Palm House was built in 1912.

LEFT: Rufus J. Lackland, first president of the Board of Trustees.

BELOW: The tornado on May 27, 1896 destroyed 450 trees.

continued on next page

HOPE FOR THE RAIN FORESTS

From the *Los Angeles Times*, November 28, 1988:

The devastation of tropical rain forests, most conspicuous in Brazil, may finally be slowing. There are encouraging indications, welcome even if too late to reverse the effect on world temperatures and "the greatest loss of species that the world has ever experienced."

This is the judgment of Ghillean T. Prance, the new director of the Royal Botanic Gardens at Kew, on the fringes of London. He was speaking at the Missouri Botanical Garden, on the fringes of St. Louis. You may be surprised to learn that Prance, Kew, the Missouri Garden and Peter H. Raven, its director, are at the center of the struggle to rescue the tropical forests of the world.

The Kew and Missouri botanical gardens are more than pretty parks with extraordinary collections of plants. They are global research centers engaged in the struggle for survival of plant species and, ultimately, humankind. They are two of the most important places for rescuing tropical species from extinction. The total of specimens in the Missouri Botanical Garden herbarium reached 3.5 million last summer—"among the most important in the world," Prance noted.

He was in St. Louis to receive the Henry Shaw Medal in recognition of his own work as the collector of 30,000 species from the Brazilian Amazon, among them 300 new species. [See the *Bulletin*, January-February 1989, page 3.] So his words about conservation had a special meaning, an authentic urgency.

Brazil has cut and burned more than 30,000 square miles of primary rain forest in the last two years, he reported. In the summer of 1987 a satellite passing over the southern Amazon of Brazil picked up 6,803 points of fire, with smoke rising to the upper atmosphere. The total burn, including primary forests and reburning of already cleared land, rose from more than 78,000 square miles in 1987 to more than 95,000 square miles—about the area of Oregon—this year. And Brazil is not alone in destroying rain forests.

Pictures of the terrible burns seem to have played a decisive role in winning a change of policy from President Jose Sarney of Brazil, Prance reported. Last month, in an address to the Brazilian nation, Sarney announced new measures to slow Amazon forest destruction, including an end to tax incentives for deforestation projects and limits on cattle-raising projects, Prance said.

Rain forest destruction is one of two major contributors to the greenhouse effect that now almost certainly will raise world temperatures by at least 3 degrees Celsius (about 5 degrees Fahrenheit), he said. The other principal culprit is the burning of fossil fuels, oil and gas, most of it consumed by the developed nations. This means that all industrialized nations, not just the developing nations that are destroying the great rain forests, are contributing to the climatic changes that bode widespread dislocation like the drought in the American Midwest last summer, he said.

"If there is to be any future for tropical rain forests and for the half of the world's species which they harbor, it will be through a balance between conservation of natural ecosystems and rational, sustainable utilization of the other areas," Prance concluded. Profound advice. That is why, in his view, botanists must do more than collect and catalogue. They must also become engaged in "economic botany, the study of useful plants."

—Reprinted by permission of the Los Angeles Times.

CENTENNIAL *continued*

sive damage from two storms. On May 21, hail destroyed 6,000 glass panes in the greenhouses. Less than a week later, a tornado roared through the Garden, destroying 450 trees. Total cost: nearly $4,500.

The Trustees also were saddled with financial and other problems from the property Shaw left to support the Garden. For 1890, the property set aside to maintain the Shaw School of Botany realized no income after taxes and expenses; the school faced a deficit of $2,000, which the Trustees had to meet from other sources. Beyond that was the fact that, to collect the income from their rental property, the Trustees had to be landlords, meaning a good deal of their business during the 1890s concerned the problems of leaking roofs and clogged drains in apartments and houses in the surrounding neighborhood.

By 1900, the Garden was operating at a deficit, ending the year in the red by more than $12,000.

But Shaw had chosen his caretakers well, and the outlook was not all bleak. For one thing, the improvements that were costing so much money were paying dividends of a sort other than financial. *Popular Gardening* cited the Garden as "magnificent," and the number of visitors increased. While the first year had seen days on which only six souls ventured into the Garden, by 1898, there were close to 90,000 visitors for the year.

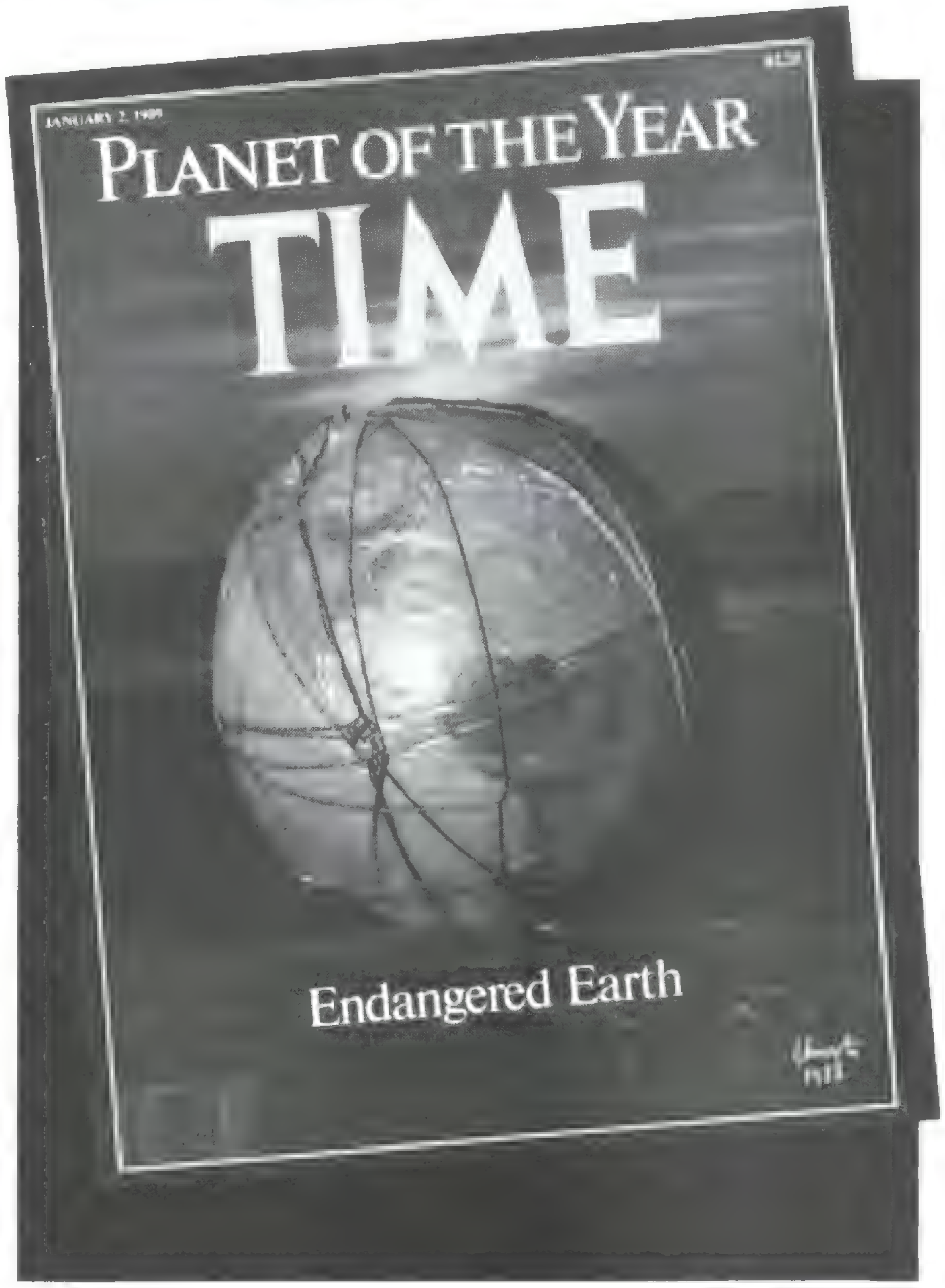
In addition, the Garden was beginning to be recognized for its scientific work. One of the first actions of the Board not long after its formation was to approve the hiring of an assistant for Trelease, A. S. Hitchcock (no relation to Trustee Henry Hitchcock), who made the Garden's first botanical collecting trip, in 1890, when he went to the West Indies. The Board also approved Trelease's pursuit of the botanical library of Dr. E. Lewis Sturtevant, an estensive collection of rare and valuable early manuscripts and books. By 1909, the library would have more than 60,000 books and pamphlets—a dramatic increase over the fewer than 5,000 the Garden had in 1889.

With the accession of an herbarium left by Shaw's friend, botanist and physician George Engelmann, the herbarium of botanist Johann Bernhardi, which Shaw acquired in 1857, and collections by Garden botanists, the herbarium was also growing, reaching more than 600,000 specimens by 1909.

Even in the midst of all this growth, the Trustees also found themselves capable of solving the Garden's financial problems. Seeing that the greatest burden to them was the property outside the Garden—the commercial and residential real estate Shaw left them—they petitioned the courts, in 1896, for permission to sell that property not directly related to the Garden. While some argued that Shaw's will appeared not to allow such a move, the Trustees pointed to language in the will prohibiting the sale of his property set aside for the public good, and maintained that while the Garden was for the public good, the rental property was not necessarily so. The value of the land in question was in excess of $1 million.

The court granted the Trustees' petition, and, while it took several years to dispose of the property, by 1901 the Garden was in the black once more—only a year after the Trustees found themselves with a deficit. *—To be continued.* ▼

GLOBAL ENVIRONMENTAL CRISIS ACHIEVES INTERNATIONAL RECOGNITION



JANUARY 2, 1989

PLANET OF THE YEAR

TIME

Endangered Earth

The Garden and its director, Dr. Peter H. Raven, have long been at the forefront of the effort to encourage awareness and commitment to the environmental problems threatening our world. With *Time* magazine proclaiming Earth "Planet of the Year," discussion has intensified on the fate of the rain forests, extinction rates, pollution and population control. As national and international news media increase their coverage of environmental issues, worldwide attention is focussed on these critical concerns.

TIME Cover Story

The 33-page cover story (January 2, 1989) titled "What On Earth Are We Doing?", grew out of a conference organized by *Time* magazine. For three days last November, 33 experts on the environment met with *Time* journalists at the National Center for Atmospheric Research in Boulder, Colorado. Included were scientists, administrators and political leaders from five continents, including a team from the Soviet Union headed by Fyodor Morgun, chairman of the state committee for environmental protection. Among the participants were Dr. Raven, E. O. Wilson of Harvard University, and U.S. Senators Albert Gore Jr. and Timothy Wirth.

The story quoted Dr. Raven as predicting "that during the next three decades man will drive an average of 100 species to extinction every day. Extinction is part of evolution, but the present rate is at least 1,000 times the pace that has prevailed since prehistory." Dr. Raven also was quoted saying, "All nations are tied together as to their common fate. We are all facing a common problem, which is, How are we going to keep this single resource we have, namely the world, viable?"

Joint U.S.-Soviet Committee

International cooperation on this urgent problem is the theme of another significant project, the formation of a joint Committee on Global Ecology Concerns by the national science academies of the United States and the Soviet Union. As reported in the December 14, 1988 edition of *The New York Times International* edition, members of the academies met recently in Irvine, California, to discuss issues they regard as equal in importance to nuclear arms control. The committee warned that Earth's "ecological security" is threatened, and agreed to make policy recommendations to their governments on environmental problems. Dr. Raven is a member of the American delegation, and participated in the conference.

ABC News Features Raven

Dr. Raven also was featured as "Person of the Week" on ABC "World News Tonight" with Peter Jennings on October 14, 1988. The occasion highlighted "World Rain Forest Week." Jennings and Raven summarized the factors threatening the tropics and the global implications of these issues. The work of the Garden, and Dr. Raven, was used to illustrate the urgency of dealing with world population growth and competition for dwindling, irreplaceable resources.

Continuing Emphasis

Dr. Raven said recently, "It is exciting and gratifying to work with world leaders to begin to find solutions to these problems on an international basis. It is only through a broad basis of cooperation that we will be able to deal with the environmental crisis facing our world.

"But these solutions will depend on education of individuals. Here in St. Louis, the Garden has always focussed its educational and research programs on the environment, offering a significant resource to the St. Louis community and the entire State of Missouri.

"There *is* hope; it is not too late. The actions we take today *can* make a difference," Dr. Raven concluded.

Garden Scientists Featured in Special Lecture Series

Among the scientists at the Garden are some of the top plant scientists in the world. A special series of eight Wednesday evening lectures, March through May, will introduce these scientists, give audiences a glimpse of fascinating locations, and provide a close look at some of the world's more unusual and interesting plants. This series of fully illustrated "curators' talks" begins March 15 and runs eight Wednesday evenings, through May 24. The series subscription is $35; $25 for Garden members and $20 for senior citizens. Single session tickets are $5; $4 for Garden members and $3 for senior citizens. All lectures are at 7 p.m. in the Ridgway Center at 4344 Shaw Boulevard.

The individual lectures are fully described in the *Spring Courses and Lectures* brochure that recently was mailed to all Members. See the Calendar of Events on pages 12-13, or call 577-5140 for more information. **Registration is limited.**

H·O·M·E GARDENING

SUCCESS WITH SEEDLINGS

Spring is right around the corner, and with its arrival comes the rush to have plants ready to fill garden beds and borders. The following tips will help you on your way to the healthiest crop of transplants ever.

SCHEDULING

For starters, it's a good idea to read about seeds you haven't tried before. Note special germination requirements and recommended planting methods that will improve your results and help you schedule the best time to sow. Some seeds need light to germinate and shouldn't be covered; others require darkness. Seeds with thick seed coats may need to be soaked overnight or sanded lightly with a nail file (called scarification) before sowing. Perennials, trees, and shrubs sometimes require periods of cold, moist storage (called stratification) if they are to germinate. Seed packets, catalogs, pamphlets accompanying mail order seed, and books are all good sources of information.

Determine the best time to sow each type of seed by counting back from the recommended transplanting date. Seeds started too early are often potbound or too tall and spindly by transplant time.

SOIL AND POTS

Commercial seed-starting soil mixtures are excellent; they are sterile, free of weeds, hold plenty of water, but still drain well. Use only clean containers, as soil clinging to old pots can harbor fungi and other diseases. You can clean old containers with a 10 percent solution of chlorine bleach in water. Scrub pots with a brush, and rinse thoroughly. Whether you use plastic bedding plant "six-packs" or recycled cottage cheese containers, they should have plenty of holes for adequate drainage.

Before filling your containers and sowing seeds, soak the soil mix in warm water for a day to be sure it is thoroughly moistened. If you skip this step, the mixture will tend to float out of the pots or flats if you are watering from the bottom; if you water from the top, the water will flow right through the pot almost without effect.

SOWING

Overcrowded seedlings are more prone to disease and tend to be weak and spindly, so don't sow seeds too thickly. Mix tiny seeds with a small quantity of white sandbox sand before sowing to help you distribute them evenly. If you are sowing in flats, space medium-size seeds about one-half inch apart, and large seeds at one-inch intervals. If you sow directly into pots, plant only a few seeds per pot, spacing them carefully. After they sprout, remove all but the strongest seedling.

"Jiffy" pots made of compressed peat are especially handy, as they can be set in the ground without removing the plant at all. Be certain to trim off the pot level with the ground to keep water from "wicking" up from below.

Thin your seedlings soon after they germinate, to avoid overcrowding and ensure good air circulation. Using a scissors to snip off unwanted seedlings will minimize root disturbance.

WATER AND LIGHT

Keep seeds evenly moist until they germinate. Cover flats loosely with plastic dry cleaner's bags supported by a wood or wire framework. The plastic must not touch the surface of the soil or the emerging seedlings. Plastic storage boxes also work well. Be sure bags or boxes are not tightly sealed, so air can circulate. Remove the plastic once seeds have germinated.

To discourage damping off and encourage formation of deep roots, water seedlings from the bottom. Soak pots or flats until the water reaches just below the surface of the soil. Once the seedlings have two true leaves, begin weekly feedings with diluted fertilizer, generally a half-strength solution of 9-45-15 water-soluble plant food.

Seedlings need bright light for sturdy, compact growth. Greenhouses are ideal for starting seedlings, but you can produce excellent ones under ordinary fluorescent lights. Keep the lights no more than two to three inches above the tops of the seedlings and keep the lights on for about 18 hours per day.

TRANSPLANTING

Seedlings sown in flats should be moved to individual pots once they have two pairs of true leaves. Gently lift the seedlings, and the soil that clings to the roots, with a spoon, a knife, or a flat wooden stick. Hold onto a leaf to avoid inadvertently crushing or breaking the stem. While a damaged leaf can be replaced, a stem can't. Transplant into pre-dampened potting mix, as dry soil can quickly pull the moisture out of delicate seedlings.

To minimize transplant stress, harden seedlings before moving them to the garden. Slowly expose them to the conditions they must adapt to by moving them outdoors in the morning or afternoon for an hour. Gradually increase the exposure each day until you leave the plants out for 24 hours. You'll need to watch them closely during this adjustment period.

TIPS FOR BUYING BEDDING PLANTS

If you choose to purchase bedding plants this spring, be sure to inspect them carefully. Plants that have been baked on a sunny sidewalk or watered improperly are no bargain. Yellow-green leaves, scraggly or limp plants, wilted foliage, and bleached-out flowers all are signs of plants to avoid.

Also look closely to make sure you won't be bringing home pests with your purchase. Whiteflies, tiny sucking insects often described as "flying dandruff," are common on bedding plants. Shake the leaves gently and if you see some flutter up, look elsewhere for your plants. Also keep an eye out for tiny webs of spider mites in foliage and flowers, and for aphids, slugs, or mealybugs.

Don't be tempted by displays of bedding plants that appear long before it is warm enough for them to go into the garden. Some annuals grow well in cool temperatures, but many won't thrive if planted outdoors before the soil has warmed and night temperatures remain above 60°F.

Finally, although annuals in full flower or tomatoes with fruit already started are tempting, avoid them if possible. Plants not yet in flower are better able to withstand transplant stress. They also have a chance to grow the strong roots they need to support blooms all season long.

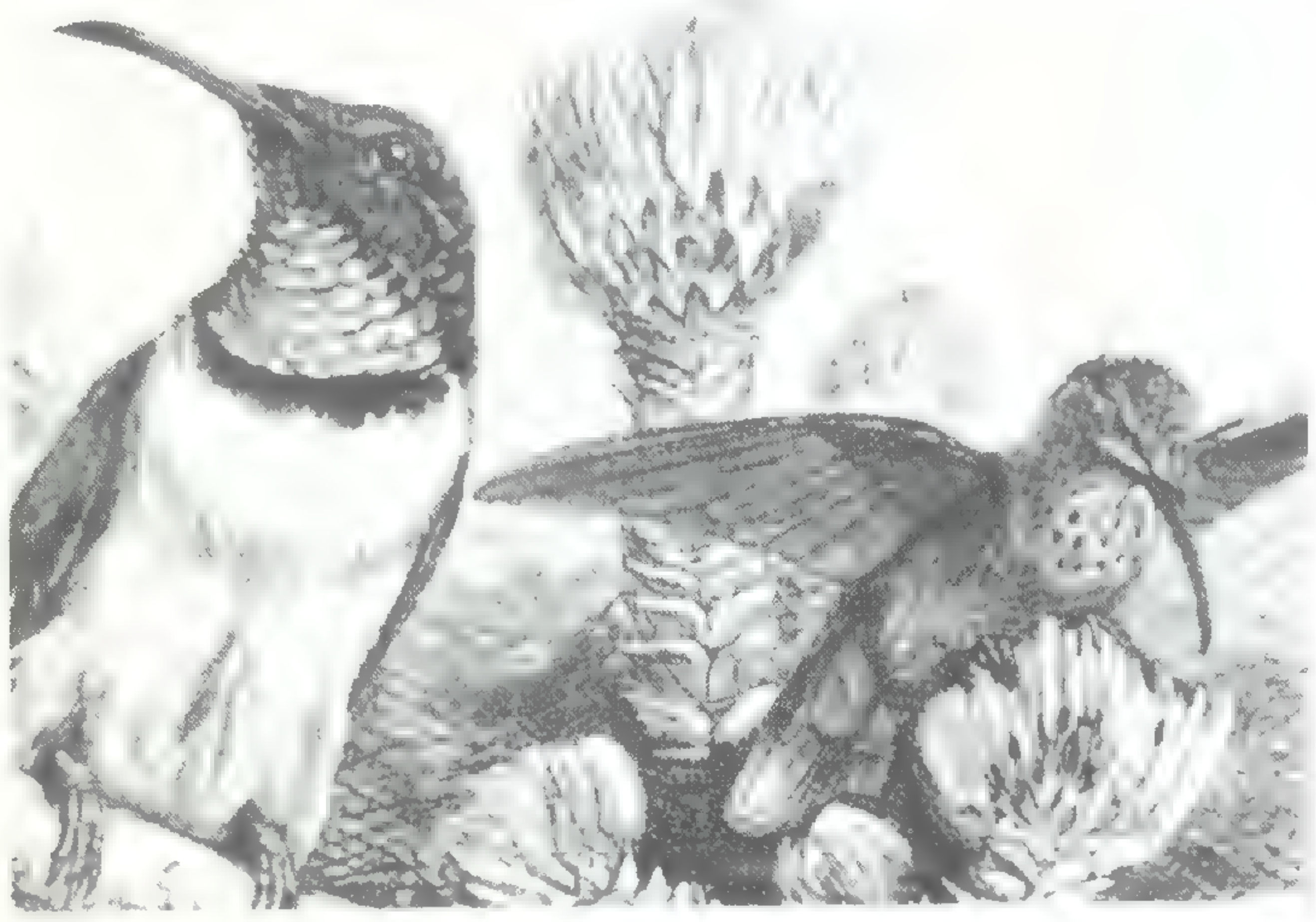
—Barbara Ellis

Gardening at the Garden

The Birds and the Bees

If you'd like to understand what the birds and bees *really* do in the spring, consider the love life of flowering plants.

Disclaimer: everything in this article is subject to exceptions and variations. It helps to learn the names of flower parts. Everybody knows what **petals** are, and that often these are fused edge-to-edge to form a tube. The petals surround the **stamens**, which look like threads tipped with little bags, the **anthers**. Anthers produce microscopic **pollen** grains, and these typically are carried to another flower by those famous birds and bees, or by other bugs, wind, water, or bats.



Hummingbirds' beaks often correspond to the shapes of the flowers they pollinate.

To bring about sexual fertilization, the pollen grain must be deposited onto the receptive tip of the **pistil**, which is the female structure at the flower center. From here a tiny tube grows out of the pollen grain and delivers a sperm to a potential **seed** deep in the pistil. This triggers maturation of the seed and transformation of the pistil into the **fruit** enclosing the seed(s).

Creatures don't deliver pollen to be helpful—they carry it from flower to flower incidentally while seeking sugary nectar, protein-enriched pollen or starchy flower parts as food. Some tricky flowers lure gullible pollinators by providing fake nectar, fake members of the pollinator's opposite sex, or fake odors of rotting flesh (if they are pollinated by flies). Certain flowers of very cold regions are shaped like dish-type TV antennae and focus the sun's rays onto what must be a toasty warm perching point for insect visitors.

Many familiar north-temperate trees (oaks, hickories, ashes, elms, birches, walnuts, and others) and many nonwoody plants (grasses, sedges, ragweed) have tiny, inconspicuous flowers pollinated by wind. Not needing to attract living pollinators, such flowers lack petals or they have very small, often greenish petals. Wind-pollinated flowers tend to be clustered, with those in many trees, particularly male flowers, forming long, dangling **catkins** or **aments**. Examples can be seen all over the Garden in the spring (if you can stop sneezing long enough to notice). The seed-producing female flowers often have long antennalike stigmas that catch windborne pollen grains. Wind-pollinated plants must flower without foliage in the way: this means in the spring before the leaves come out for trees, or with flowers above the leaves for grasses.

Bees are the world's greatest pollinators, and the flowers they pollinate are diverse. Just as the flowers are adapted to the bees, the bees can be adapted to the flowers. For instance, honey bees have sophisticated apparatus for collecting pollen on their legs and a complex dance that allows them to report to others in the hive the direction and distance to flowers. Frequently bee flowers are tubular and horizontal, with a ramplike landing platform or "lip," this often marked with "nectar guides" leading into the floral tube. Bee flowers tend to be sweetly fragrant, and often are blue, yellow, or purple. Bees are sensitive to ultraviolet light, which people cannot see, so when certain flowers are photographed using UV-sensitive equipment, surprising (to people, not to the bees) patterns show up. Watch for fancy mechanisms for accurate placement of pollen onto the bee and its recovery from the same spot. These are highly varied, sometimes have moving parts, and can be challenging puzzles to interpret. Some familiar blossoms pollinated by bees are: violets (nectar guides!), snapdragons, foxgloves, blue salvias (with a snazzy lever mechanism for dabbing pollen), black locusts (which dust the bee from below when it alights), and lots of orchids (with astounding tricks and traps).

Red flowers belong mostly to birds, whose flowers also can be bright combinations of orange, green, or yellow. Bird flowers are not very fragrant, produce enough nectar for a bird-sized appetite, and often have long, narrow tubes. As with other pollinators, the form of the flower accommodates the "right" pollinators but tends to exclude "robbers" who take nectar or pollen without exchanging pollen. The tubes on many bird flowers match the birds' beaks like lock and key. The only Missouri bird pollinators are hummingbirds, which visit trumpet creepers, trumpet honeysuckles, pinkroots, royal catchflys, fuchsias (in the Linnean House), cardinal flowers, and scarlet salvias, all of which are displayed at the Garden.

Butterflies alight to suck nectar with their long, thin unrolling proboscises. The flowers they visit, often pastels, red, or white, tend to have faint, sweet scents. They often provide landing platforms—but not like those for bees. The whole flat ring of petals spreads out horizontally around a narrow vertical tube that the butterfly probes with its proboscis. Often clustered, these flowers look a little like witch's hats upside down with the rim corresponding to the landing platform and the peak of the hat representing the narrow tube. Also popular with butterflies are members of the Composite family, whose small, narrow flowers are tightly clustered, usually into broad, horizontal landing platforms. Familiar butterfly flowers include verbenas, phloxes, milkweeds (heavily visited by bees as well), lantanas, and buddlejas (also known as "butterfly bushes").

Unlike their butterfly kin, moths hover with no need for landing platforms, at night, so the flowers are white or pale, frequently with frilly silhouettes. They often lure the moths from long distances with intense fragrances, which are almost as compelling to humans as to moths. (I wonder if the perfume "Jungle Gardenia" draws moths?) The proboscises on moths can be ridiculously long—up to a foot—and many moth flowers have long, skinny tubes or nectar in deep recesses to match. Examples include the Missouri evening primrose, jasmine, white campion, bouncing bet, pale-flowered honeysuckles, and sansevierias.

—George Rogers, Ph.D.

RESEARCH NEWS

Partners in Research and Exploration

The Missouri Botanical Garden has developed a vast network of collaborating scientists all over the world. Through the years these individuals have established close working relationships with the Garden. Their research interests vary widely and cover many areas of botany and geographic regions in which the Garden itself is not especially active. Some of these scientists have visited the Garden for extended periods at some point in their professional careers; others have been or are currently involved in joint research efforts with Garden staff. They all are valued as important contributors to our institution's commitment to the study and understanding of the world's natural resources.

In order to recognize these very close working relationships in a meaningful way, the Garden appoints some of its scientific collaborators as Research Associates and/or Honorary Curators. A very special category of Curator Emeritus also has been established to recognize close, long and very successful associations. Only one individual, Dr. John D. Dwyer, currently holds this title.

Affiliation with the Garden in any one of these capacities involves no specific obligation on either side. It gives both parties, however, the opportunity to derive mutual benefits from exchange of information, support for research efforts, use of research and library facilities, and other activities. The association maintains the potential for stronger ties and increased collaboration when this is considered appropriate.

The Garden is very pleased to count among its closest associates this outstanding group of scientists. This issue includes an account of Dr. Barbara Schaal's current work at Washington University. Future issues will feature work by other Garden associates.

BARBARA SCHAAL/*Genetics and Evolution*

Barbara Schaal is a professor of biology at Washington University, and is currently acting chairman of the biology department. Dr. Schaal received her Ph.D. in population biology from Yale in 1974 and she has been a research associate of the Garden since 1980, when she joined the faculty of Washington University. She serves as the alternate for Chancellor William H. Danforth to the Garden's Board of Trustees.

The research in my lab deals with the genetics of plants. We investigate how the biology of plants influences their evolution through such characteristics as clonal growth, diverse breeding systems, and long life spans. Our studies require analysis of genetic variation within a species, using recombinant DNA technologies. Direct analysis of DNA sequences has provided a powerful new tool for expanding our understanding of plant evolution, including problems that could not be analyzed in the past.

DNA sequences also can be used to study relationships among species, genera and families of plants, tracing the evolution of a plant group through specific chemical changes that have occurred. With computer models and statistical techniques, we can reconstruct evolutionary pathways. Our current studies of this type include adaptive radiation in Hawaiian plants, hybridization in the evolution of

RESEARCH AFFILIATES

Curator Emeritus

Dwyer, John D., P.O. Box 299, Missouri Botanical Garden, St. Louis, MO 63166

Honorary Curators

Ayala Flores, Franklin, Apartado 421, Iquitos, Peru

Chen, Chia-jui, Institute of Botany, Academia Sinica, 141 Hsi Chih Men Wai Ta Chie, Beijing, People's Republic of China

Correa A., Mireya D., Herbario, Escuela de Biología, Universidad de Panamá, Estafeta Universitaria, Panamá, Panama

Crisci, Jorge V., División Plantas Vasculares, Museo de La Plata, 1900 La Plata, Argentina

Gómez, Luis Diego, P.0. Box 73, San Vito, Coto Brus, Costa Rica

Rentería Arriaga, Enrique, Departamento de Química y Biología, Universidad Tecnológica del Chocó, Apartado Aéreo 292, Quibdó (Chocó), Colombia

Sousa S., Mario, Departamento de Botánica, Instituto de Biología, U.N.A.M., Apartado Postal 70-367, Delegación Coyoacán, 04510 México, D.F., Mexico

Wu, P. C., Institute of Botany, Academia Sinica, 141 Hsi Chin Men Wai Ta Chie, Beijing, People's Republic of China

Research Associates

Aronson, James, c/o Dr. Carlos Ovalle, I.N.I.A., Casilla 426, Chillán, Chile

Arroyo, Mary T. K., Facultad de Ciencias, Depto. de Biología, Universidad de Chile, Casilla 653, Santiago, Chile

Averett, John, National Wildflower Research Center, 2600 FM 973 North, Austin, TX 78725

Barnett, Lisa, Herbarium, New York Botanical Garden, Bronx, NY 10458

Bernhardt, Peter, Dept. of Biology, Laclede Avenue, St. Louis University, St. Louis, MO 63103

Carr, Bruce L., Dept. of Education, St. Louis Zoological Park, Forest Park, St. Louis, MO 63110

DeVries, Philip, Dept. of Zoology, The University of Texas at Austin, Austin, TX 78712-1064

Dietrich, Werner, Botanischer Garten, Universität Düsseldorf, Universitätsstrasse 1, Düsseldorf D-4000, West Germany

Dillon, Michael, Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, Chicago, IL 60605

Faden, Robert, Dept. of Botany, Smithsonian Institution, Washington, D.C. 20560

Foster, Robin B., Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, Chicago, IL 60605

Graham, Alan, Dept. of Biological Sciences, Kent State University, Kent, OH 44240

Hartshorn, Gary, World Wildlife Fund-U.S., 1250 Twenty-fourth St., N.W., Washington, D.C. 20037

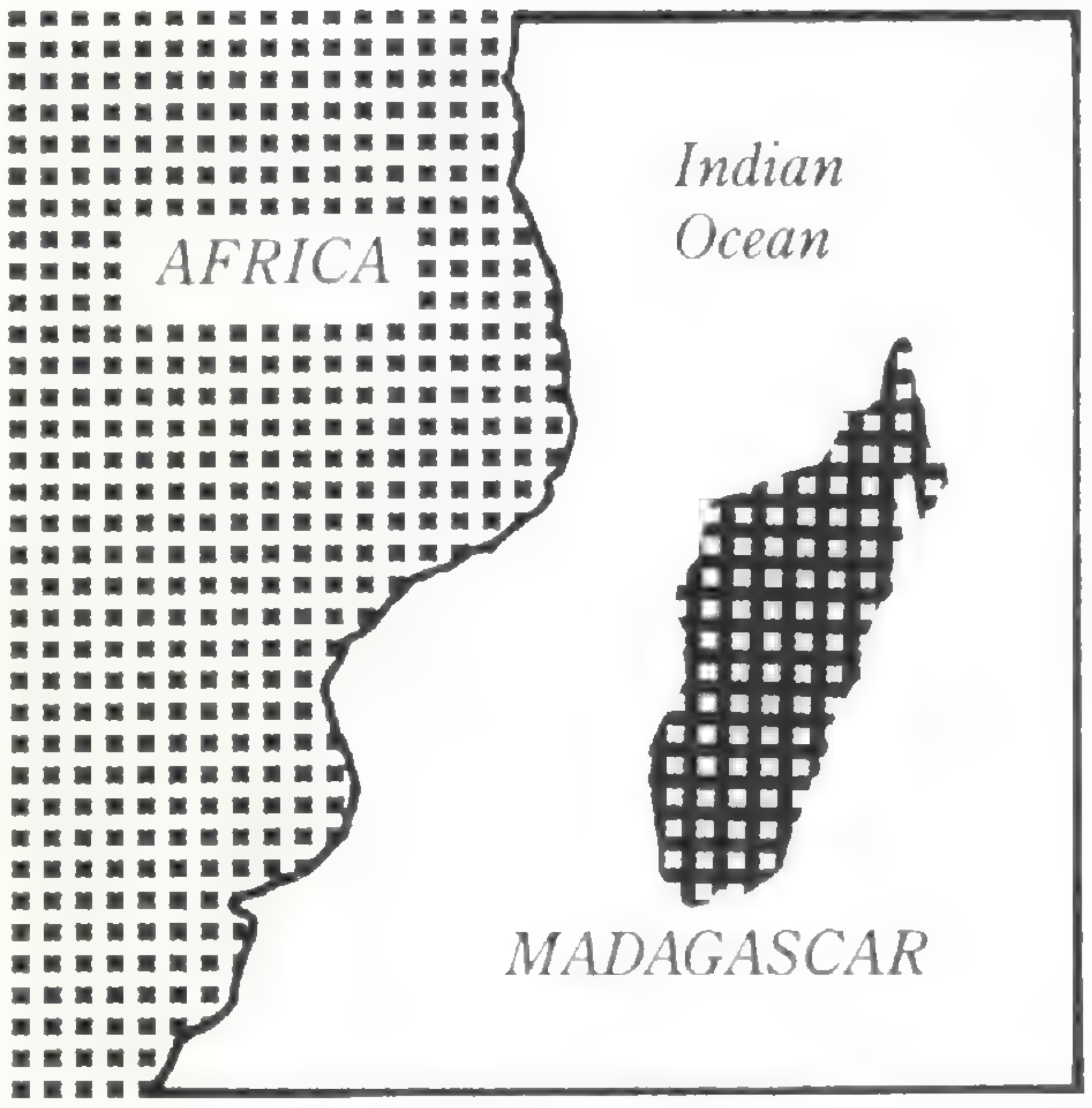
Hoover, W. Scott, 718 Henderson Road, Williamstown, MA 01267

Kapos, Valerie, c/o Dr. E. Tanner, School of Botany, Downing Street, Cambridge, CB2 3EA, United Kingdom

Keating, Richard C., Dept. of Biological Sciences, Southern Illinois University-Edwardsville, Edwardsville, IL 62026

Kuijt, Job, Dept. of Biology, University of Lethbridge, Lethbridge, Alberta TIK 3M4, Canada

Report from Madagascar *A New Approach to Conservation*



The Garden has announced plans for an ambitious new conservation program in Madagascar. With the help of a $450,000 grant from the United States Agency for International Development (USAID), the three-year, $1.45 million project will be one of the first of its kind ever attempted. Its innovative approach combines creation of a national park with local economic development. The Garden's director, Peter H. Raven, hopes that the program can be a model for future conservation projects. The program is a major step forward in protection of tropical rain forests, and places the Garden at the forefront of world conservation efforts.

Porter P. Lowry II, who heads the Garden's research program in Madagascar, explains, "The park is a traditional approach to conservation. While it will provide a tremendous laboratory for scientists to inventory and study plants and animals, it solves only half the problem.

"The other part of the project responds to the pressing needs of local residents, who often see conservation projects as threatening their very survival by placing land needed for agriculture off limits. Through improved land use and rural development programs, we can offer them alternatives to clearing the rain forest for cattle grazing, logging, farming and firewood. Enabling the local people to improve their standard of living also takes the pressure off the preservation area."

"Progress in the tropics depends on combining sustainable development with conservation," said Dr. Raven. "Unless conservation projects benefit local residents, they have little chance of success."

Madagascar is an ideal site for this landmark program, as the island is both extraordinarily biologically important and extraordinarily endangered. Deforestation has destroyed 90 percent of the country's forests, and many of its plant and animal species are either extinct or threatened with extinction. Of the 10,000 plant species in Madagascar, 75 percent are unique to the island. If current land use practices are continued, virtually all of the country's plants and animals will be destroyed in the next 20 or 30 years by the creation of man-made deserts.

The 1200-square-mile national park to be created under the Garden's supervision will encompass the entire Masoala Peninsula (see the *Bulletin*, September-October 1988). It will be the largest protected area in Madagascar, and will shelter the island's only remaining virgin rain forest.

The project has the support of the government of Madagascar, and will work with two local agencies, the Malagasy Lutheran Church and the Ministry of Water and Forests.

Barbara Schaal (continued)

oaks, and relationships among pine species in Mexico.

Much of our work is conducted on plants native to Missouri, specifically in the dry glade habitats where bedrock lies close beneath the surface soil. Many of the species that grow in Missouri glades are found nowhere else, and can be used as genetic models for rare or endangered species in general. The results can be used to devise schemes for conservation of genetic resources of threatened species and to maintain genetic diversity for future plant breeding.

Leverich, W. Joseph, Dept. of Biology, St. Louis University, 3507 Laclede Ave., St. Louis, MO 63103
Lieberman, Milton E., Dept. of Biology, University of North Dakota, Grand Forks, ND 58202
Lowrey, Timothy K., Dept. of Botany, National University of Singapore, Kent Ridge, Singapore 0511
Meijer, Willem, Herbarium, School of Biological Science, University of Kentucky, Lexington, KY 40506-0225
Mohlenbrock, Robert, Dept. of Biology, Southern Illinois University, Carbondale, IL 62901
Mulkey, Stephen, Dept. of Biology, University of Missouri-St. Louis, 8001 Natural Bridge Road, St. Louis, MO 63121-4499
Nadkarni, Nalini M., Dept. of Biological Sciences, University of California-Santa Barbara, Santa Barbara, CA 93160
Peng, Ching-I, Herbarium, Institute of Botany, Academia Sinica, Taipei, Taiwan 115, Republic of China
Pilz, George E., P.O. Box 34, Tegucigalpa, D.C., Honduras
Randrianasolo, Voara, B. P. 3391, Antananarivo 101, Democratic Republic of Madagascar
Redfearn Jr., Paul L., Dept. of Botany, Southwest Missouri State University, Springfield, MO 65804
Reese, William D., Biology Department, University of Southwestern Louisiana, Box 42451, Lafayette, LA 70504-2451
Robbins, Laurie R., Dept. of Biology, Allegheny College, North Main, Meadville, PA 16335
Rogstad, Steven H., Dept. of Biology, Washington University, Campus Box 1137, St. Louis, MO 63130
Schaal, Barbara, Dept. of Biology, Washington University, Campus Box 1137, St. Louis, MO 63130
Seigler, David, Dept. of Plant Biology, University of Illinois, Urbana, IL 61801
Sheffer, R. D., Dept. of Biology, Indiana University Northwest, 3400 Broadway, Gary, IN 46408
Sork, Victoria, Dept. of Biology, University of Missouri-St. Louis, 8001 Natural Bridge Road, St. Louis, MO 63121-4499
Steiner, Kim E., National Botanic Gardens of South Africa, Kirstenbosch, Private Bag X7, Claremont 7735, Republic of South Africa
Stotler, Barbara, Hepatic Herbarium, Department of Botany, Southern Illinois University, Carbondale, IL 62901
Stotler, Raymond, Hepatic Herbarium, Department of Botany, Southern Illinois University, Carbondale, IL 62901
Sussman, Robert, Dept. of Anthropology, Washington University, St. Louis, MO 63130
Taylor, Charlotte M., Department of Biology, University of Puerto Rico, Río Piedras, Puerto Rico 00931
Templeton, Alan R., Dept. of Biology, Washington University, Campus Box 1137, St. Louis, MO 63130
Todzia, Carol A., Plant Resources Center, Department of Botany, University of Texas, Austin, TX 78713

Missouri Botanical Garden

CALENDAR OF EVENTS

March-April 1989

MARCH 11–APRIL 9 / SPRING FLOWER SHOW

9 a.m. to 5 p.m. daily, Orthwein Floral Hall. Stroll through an old-fashioned country garden complete with a gazebo, fountains and a white picket fence. Pansies, lilies, daisies, primroses, irises, snapdragons, flowering trees and shrubs in a rainbow of color. Free. *Special Members' Preview: See March 10.*

MARCH 23 / MEMBERS' DAY Backstage Garden Tour

1 to 4 p.m. Guided walking tours leave the Ridgway Center every ten minutes. Visit Garden facilities not usually open to the public, including the Herbarium, Library, and the Museum building. For Members only. Free.

MARCH 4–APRIL 2 / "Fields of Grass" Exhibit and Lecture Series

Exhibit: 9 a.m. to 5 p.m. daily, Ridgway Center. Drawings, prints and watercolors featuring grasses, organized by the Hunt Institute for Botanical Documentation, Carnegie-Mellon University, and the National Museum of Natural History, Smithsonian Institution. Free. *See March 12, 23 and 30 for related lectures.*

MARCH

1 WEDNESDAY

Gardening by Design Lecture Series: "Bulbs as Companion Plants"

1 and 8 p.m., Shoenberg Auditorium. Series continues, with a lecture by Brent Heath, owner of Daffodil Mart. Tickets available at the door, if series is not sold out: $4 Members, $5 Non-members. Call 577-5125 for information.

4 SATURDAY

Walking Tour

1 p.m., meet at Ridgway Center ticket counter. (Sunday tours meet at 2 p.m.) Discover early spring blooms with Garden Guides trained to discuss horticulture, ecology, architecture, history and sculpture of the Garden. Tours will go regardless of the weather, so please dress appropriately. Free.

5 SUNDAY

Walking Tour

2 p.m. See March 4 for details.

6 MONDAY

Plant Clinic

9 a.m. to noon, Ridgway Center. Master Gardeners will assist you with on-the-spot identification of your plants and their insect, disease and cultural problems. Free.

7 TUESDAY

Walking Tour

1 p.m. See March 4 for details.

8 WEDNESDAY

Gardening by Design Lecture Series: "Enlivening the Landscape with Imaginative Trees and Shrubs"

1 and 8 p.m., Shoenberg Auditorium. Lecture by Dr. J. C. Raulston, director of North Carolina State University Arboretum. See March 1 for details.

10 FRIDAY

Spring Flower Show Preview

5 to 8 p.m., Orthwein Floral Hall. Get an early look at glorious spring blooms, for Members only. Entertainment, cash bar. Dinner buffet will be available in the Gardenview Restaurant. Watch your mail for details. *See highlight.*

11 SATURDAY

MoBot Activity Day

1 to 2 p.m., Ridgway Center. See page 15 for details.

Walking Tour

1 p.m. See March 4 for details.

12 SUNDAY

"Fields of Grass" Series

2 p.m., Shoenberg Auditorium. "Returning to the Tall Grass Prairie," slide lecture by William Davit, staff naturalist at Shaw Arboretum. Free.

14 TUESDAY

Walking Tour

1 p.m. See March 4 for details.

15 WEDNESDAY

Gardening by Design Lecture Series: "Lernscaping"

1 and 8 p.m., Shoenberg Auditorium. Final lecture in the series, a look at landscape design by Joel M Lerner. See March 1 for details.

Curators' Lecture Series: "Flora of Amazonia"

7 p.m., Ridgway Center. Slide lecture by Dr. Alwyn Gentry. See page 7 for details.

18 SATURDAY

Walking Tour

1 p.m. See March 4 for details.

19 SUNDAY

Walking Tour

2 p.m. See March 4 for details.

20 MONDAY

Plant Clinic

9 a.m. to noon. See March 6 for details.

First Day of Spring

Join us for a stroll around the grounds to welcome the season.

21 TUESDAY

Walking Tour

1 p.m. See March 4 for details.

22 WEDNESDAY

Curators' Lecture Series: "Evening Primroses"

7 p.m., Ridgway Center. Slide lecture by Dr. Peter Hoch. See page 7 for details.

23 THURSDAY

"Fields of Grass" Series

2 p.m., Shoenberg Auditorium. "Yardening" video with author Jeff Ball will discuss the latest advance in lawn care. Question and answer period moderated by Chip Tynan c the Answer Service. Free.

ARCH 25–APRIL 2

t. Louis Sister Cities Amateur &
olk Art Exhibition
a.m. to 5 p.m. daily, Ridgway
enter. Works of art from Nanjing,
hina; Lyon, France; Stuttgart,
ermany; Suwa, Japan; Bologna,
aly; and Galway, Ireland. Spon-
ored by the St. Louis Ambas-
adors' Sister Cities Program. Free.

5 SATURDAY

alking Tour
p.m. See March 4 for details.

8 TUESDAY

alking Tour
p.m. See March 4 for details.

9 WEDNESDAY

urators' Lecture Series:
n Search of Chilies and
ggplants"
p.m., Ridgway Center. Slide
cture by Dr. William D'Arcy. See
age 7 for details.

0 THURSDAY

Fields of Grass" Series
p.m., Shoenberg Auditorium.
Natural Grace," poetry reading by
hirley LeFlore, local poet and play-
right, accompanied by piano and
te. Free.

APRIL

SATURDAY

alking Tour
p.m. See March 4 for details.

SUNDAY

alking Tour
p.m. See March 4 for details.

MONDAY

lant Clinic
a.m. to noon. See March 6 for
etails.

TUESDAY

alking Tour
p.m. See March 4 for details.

APRIL 8 / MEMBERS' DAY
Family Arbor Day

11:30 a.m. to 2:30 p.m., Ridgway Center and grounds. A celebration of trees, including films, tours, tree seedlings, collector's bags for kids, and more! Watch your mail for details. For Members only. Free.

5 WEDNESDAY

Curators' Lecture Series: "A World of Mosses"
7 p.m., Ridgway Center. Slide lecture by Dr. Bruce Allen. See page 7 for details.

7 FRIDAY

Arbor Day
9 a.m. to 5 p.m., grounds. Celebrate with us! The first 1,000 visitors to the Garden will receive a free tree seedling.

8 SATURDAY

Walking Tour
1 p.m. See March 4 for details.

APRIL 8–MAY 7
"Plantasia" Exhibit
9 a.m. to 5 p.m. daily, Ridgway Center. Photographs by Robert Shapiro. Free.

11 TUESDAY

Walking Tour
1 p.m. See March 4 for details.

12 WEDNESDAY

Curators' Lecture Series: "Campanulaceae—A Belle of a Family"
7 p.m., Ridgway Center. Slide lecture by Dr. Nancy Morin. See page 7 for details.

15 SATURDAY

Walking Tour
1 p.m. See March 4 for details.

16 SUNDAY

Lecture: "Plantasia"
2 p.m., Shoenberg Auditorium. Photographer Robert Shapiro will discuss his work, on display in Monsanto Hall through April 2. Free.

Walking Tour
2 p.m. See March 4 for details.

17 MONDAY

Plant Clinic
9 a.m. to noon. See March 6 for details.

18 TUESDAY

Walking Tour
1 p.m. See March 4 for details.

22 SATURDAY

Walking Tour
1 p.m. See March 4 for details.

22-23 SAT.-SUN.

African Violet Society Show
Noon to 5 p.m. Saturday; 9 a.m. to 5 p.m. Sunday, Ridgway Center. Free.

25 TUESDAY

Walking Tour
1 p.m. See March 4 for details.

26 WEDNESDAY

Curators' Lecture Series: "Ferns of the Midwest"
7 p.m., Ridgway Center. Slide lecture by Dr. Robbin Moran. See page 7 for details.

29 SATURDAY

Walking Tour
1 p.m. See March 4 for details.

APRIL 27–30 / SPRING PLANT SALE

9 a.m. to 6 p.m., Thursday and Friday. 9 a.m. to 5 p.m., Saturday and Sunday. Orthwein Floral Hall and Garden Gate Shop. Members receive 20 percent off all merchandise, all four days. Featured are bedding plants, herbs, perennials, roses and azaleas. Watch your mail for details.

COMING IN MAY

MAY 7–14 / "FRAGRANCE WEEK"

Daily activities at the Garden and Famous-Barr downtown. Join us for a "Celebration of Scent"! Watch your mail for details. *See back cover.*

Ask the Answer Service

Spring Preparations

Do you have a plant question? Call the Horticultural Answer Service, Monday through Saturday, 9 a.m. to noon, at 577-5143.

Q. Older gardening books often recommend feeding plants with "manure tea". Just what is manure tea and where can I buy some?

A. You are not likely to find manure tea for sale, but you can easily make it yourself. Manures are rich sources of the major plant elements nitrogen, phosphorous and potassium, as well as many minor and trace elements. Some of these nutrients are readily dissolved in water. Since plants absorb these nutrients through their roots, manure teas are excellent fertilizer.

Manure teas can be made from fresh materials, but you may prefer to use dried, composted manure, which is available in bags at any large garden center. Fill a cloth sack with dried manure, secure the top, and immerse it in a five-gallon bucket of water. When the water changes color, the tea is ready for use. The darker the color, the stronger the tea, but there is no danger of burning the roots of your plants with this mild fertilizer. After steeping, the wet manure can be either dug into the soil or used as a mulch; it will decompose and further enrich your plants.

Q. A friend gave me a delicious cream pie made with fresh raspberries she froze last fall. It makes me want to grow my own raspberries this year. Do you have any suggestions?

A. Raspberries may be red, yellow, purple or black. They may also be "once-bearers" or "everbearers". Once-bearers produce one crop a year, in the spring. Everbearers, in spite of their name, produce just two crops per year, one in the spring and one in the fall. In this region, the fall crop is usually the most reliable and some gardeners manage their plants to produce only a fall harvest.

Late March or early April is the time for planting raspberries. The best site has well drained, rich soil in full sun. There should be no competition from the roots of large trees or shrubs. Set your plants about three feet apart in rows about eight feet apart. After planting, prune back the tops to about three inches from the ground. More vigorous growth will result the first year if all the blossoms are picked off. The spaces between the rows will fill in quickly and the suckers should be pruned to allow only about four healthy canes to grow in each square foot of the row. Raspberries are easier to manage if the canes are supported on a trellis and wire system.

'Lathom' and 'Canby' are standard red selections that perform well in St. Louis. Everbearers include 'Heritage', 'Southland' and 'Fallred'. A good purple raspberry is 'Royalty', while 'Black Hawk' and 'Bristol' are choice black cultivars. Two of the better yellow selections are 'Fallgold' and 'Amber'.

Q. What do I need to do to prepare my Hybrid Tea roses this spring?

A. Beginning in middle or late March, gradually remove winter mulches over a period of seven to ten days. When this task is complete, the full extent of winter damage may be assessed. Pruning should be done with these goals in mind: removing all dead wood; cutting back all winter-damaged wood to green tissue; controlling the size and improving the shape of each plant; and opening up the middle of each plant to admit sunlight and to allow good air circulation. Remove all but the three or four sturdiest canes, making your pruning cuts just above a strong outwardly facing bud. Hybrid Tea roses should be cut back to within eight or ten inches of the ground.

A balanced fertilizer may be applied at this time. Lightly cultivate in a handful of 12-12-12 fertilizer around the base of each established bush. Once the plants green up, a preventive spray program may be necessary for disease control. Use a fungicide that provides protection against black spot and powdery mildew fungus.

Q. I like to make potpourri and I use orris root to fix the scents. However, orris powder is expensive and sometimes hard to find. I have been growing Florentine iris for several years now, and my clump is large enough to spare some roots. When can I harvest them?

A. Harvest your orris *(Iris ×germanica var. florentina)* at the same time you divide the rhizomes. In St. Louis this should be late July or early August. Remove the rootlets and peel off the brown outer skin. To dry the rhizomes, set them in a warm room with good air circulation. They may be dried whole or cut into smaller sections for more rapid results. Once the rhizome has dried completely, it can be powdered using a mortar and pestle.

The fresh rhizomes have no definite scent, but as they dry they take on a fragrance similar to sweet violets. This perfume becomes stronger if the roots are kept for a year or two.

TIMELY TIPS:

- Fertilize bulbs with 5-10-5 or bulb booster products in spring before blooming begins.
- Summer and fall-blooming perennials can be divided and moved before new growth reaches three or four inches. Spring bloomers are best divided in fall.
- Plant peas and onions outdoors by middle to late March. An early start for these crops is essential for productive harvests.
- Check Austrian pines for evidence of tip blight. Removing dead or brown tips now before bud break will help limit disease transmission. Disinfect pruning tools between cuts.
- Dormant (horticultural) oils can be sprayed on ornamentals and fruit trees during days when temperatures remain above 40 F. For best results, spray to the point of runoff.
- Cut and rake all lawns to remove excess debris. Rework bare spots by incorporating organic matter before seeding.
- Apply crabgrass preventers to lawns between mid-March and mid-April. Don't apply to areas that have just been reseeded.
- The average last frost date for the St. Louis area is April 15.
- Watch for the emergence of tent caterpillars on ornamentals. Remove the gauzy webs by hand or with a stick. Then spray the leaves with low toxicity insecticides such as insecticidal soap or *Bacillus thuringiensis* (B.T.).

—Chip Tynan, The Answer Service

FROM THE MEMBERSHIP OFFICE

1939 50 1989
Years of Membership
Missouri Botanical Garden

Growth of the Membership

The Garden's Membership program began in 1939, when the Garden was struggling to operate on the income of the Shaw estate. That year a plea went out from the director to the "Friends of the Missouri Botanical Garden." It was a plea to raise $25,000 in donations of $5 and $10 to "make the Garden even more attractive and useful." The letter was an urgent one, explaining that the operating budget "had fallen below an amount sufficient to support the numerous features provided for the benefit of the public." The generous response to the "Friends of the Garden" campaign marked the beginning of a thriving and loyal group of supporters who believe in the Garden, its beauty and its purpose.

The "Friends" group was augmented by the Women's Committee at the Garden, a group of people dedicated to making the Garden a special place for its special friends. Their activities included benefit parties, tours, and starting the Garden's gift shop. Over the years the membership grew and prospered because of the personal attention afforded the Members by this hardworking committee.

In the early years Members were recruited by word-of-mouth, membership teas, and personal invitations. This individual attention allowed for steady but slow membership growth to 2,500 by 1960 and 3,500 by 1970. Then a new idea was tried, utilizing direct mail to reach a wider array of people with the Garden's colorful message. This campaign succeeded in increasing memberships to 10,000 by the end of the decade and to 12,000 by the beginning of the 1980s.

Since 1980 the number of Members has continued to increase dramatically, topping 23,000 in 1988. This growing support has enabled the Garden to increase its array of events, activities and classes, serving a broad range of people and making the Garden a cultural resource for all St. Louisans.

MOBOTS PLANT THEIR OWN HERB GARDENS

The MoBot Program welcomes spring with an activity day Saturday, March 11, from 1:00 to 2:00 p.m. in the Ridgway Center. MoBots will design and plant their own herb gardens using selections from a variety of seeds and seedlings. Master Gardeners will answer questions, offer suggestions and assist the MoBot gardeners. These herb gardens, planted in a flat, will easily transplant at home. MoBots can continue tending their gardens throughout the summer months. Mom and Dad are welcome to stay, particularly with younger MoBots. This activity is free to all MoBot members.

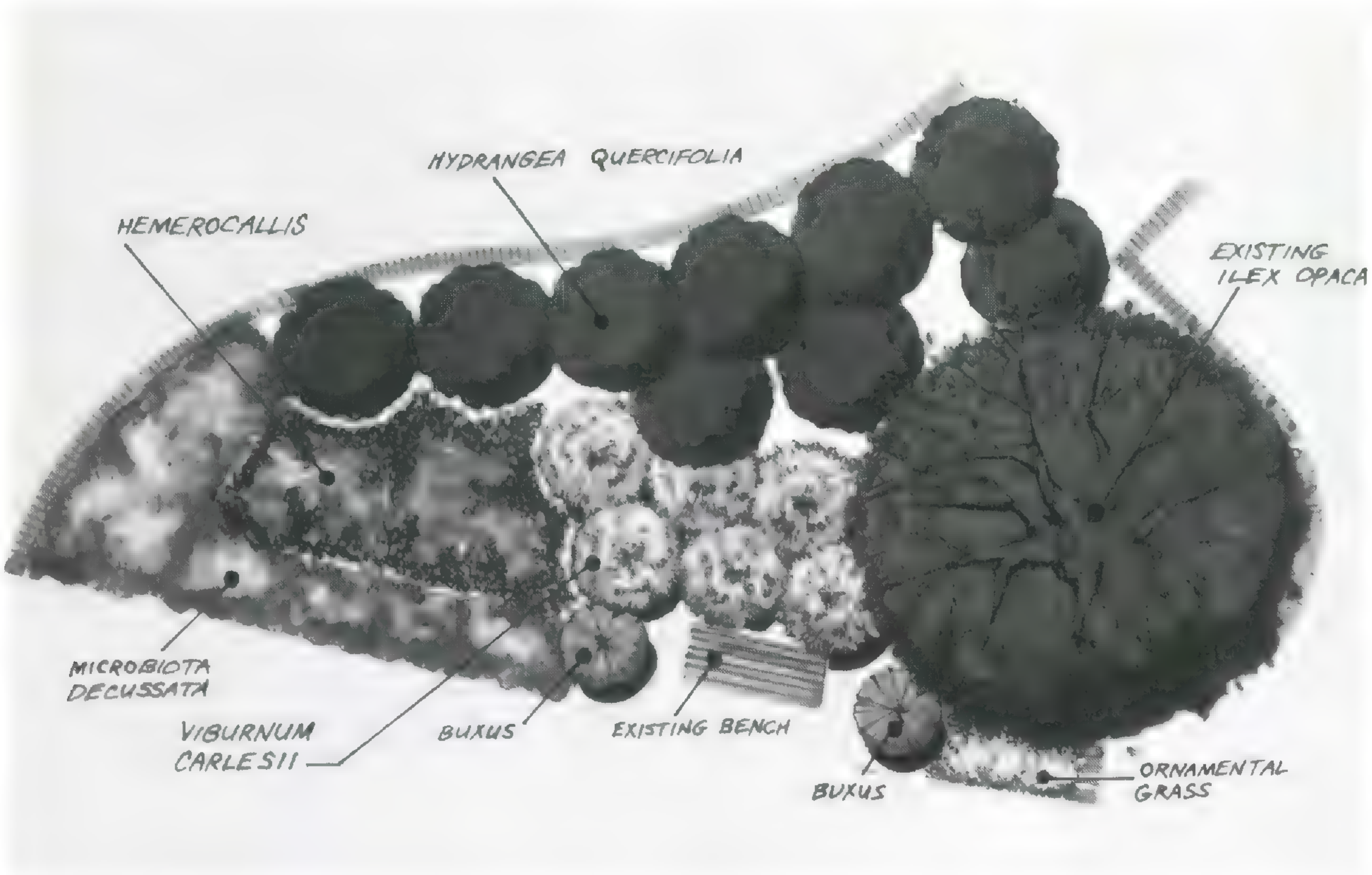
Give the Gift of the Garden

A Garden membership is the perfect gift for Mother's Day, or any day. A regular membership is $40, with increased benefits for higher levels. All Members receive a subscription to the *Bulletin*; invitations to monthly Members' Days, seasonal flower displays and special events; discounts on classes and Garden Gate Shop purchases; and more. Memberships may be purchased at the Membership Services Desk in the Ridgway Center or by calling 577-9500. A gift card will be sent at your request.

Members' Board Names New Officers

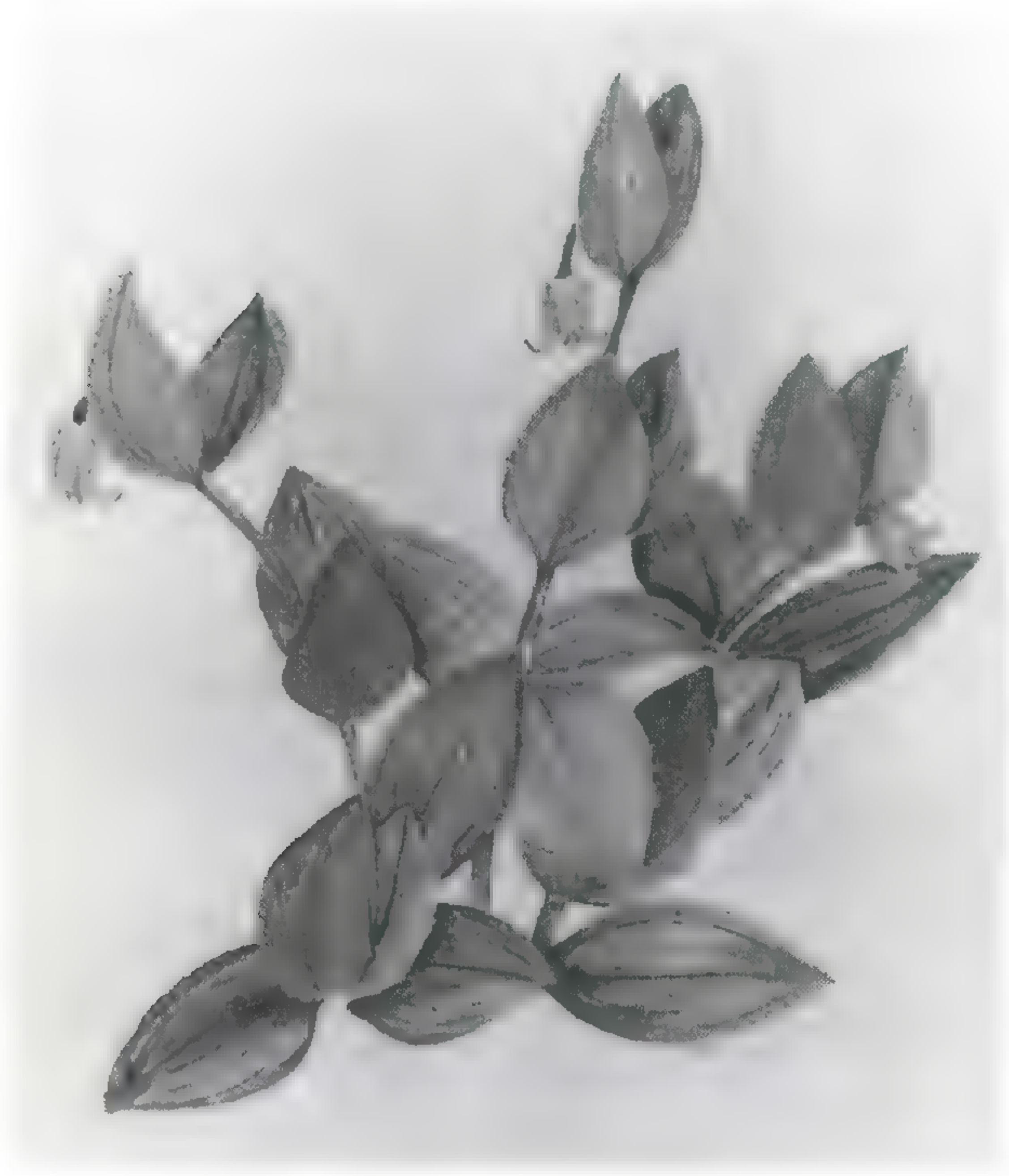
At the annual meeting January 16, 1989, the Garden Members' Board named Ellen Dubinsky president for a second term. Joining her as Board officers were Sue Rapp as first vice president, Mary Longrais as second vice president, Ginny Senkosky as secretary, and Frederick H. Atwood III as treasurer. New members named to the Members' Board were Patty Arnold, Leslie Dimit, Holly Brigham, Susie Grote, and David Mason. The new members will serve two year terms.

◀ **Pictured at left (left to right): John Biggs (retiring president, Board of Trustees), Ellen Dubinsky, David Mason, Peter Raven, Holly Brigham, Patty Arnold.**



ALAN P. GODLEWSKI MEMORIAL GARDEN

A new garden area will be completed this spring as a tribute to the late Alan P. Godlewski, director of horticulture at the Garden (see the *Bulletin*, May-June 1988). The Alan P. Godlewski Memorial Garden is located at the northeast end of the Jenkins Daylily Garden, affording a panoramic view across the Knolls toward the Climatron. The new area was designed to complement the daylily garden. The design incorporates a bench, and is planted with boxwood, holly, hydrangea, viburnum, microbiota, daylilies and ornamental grasses. The garden was funded entirely by contributions given in memory of Alan Godlewski.



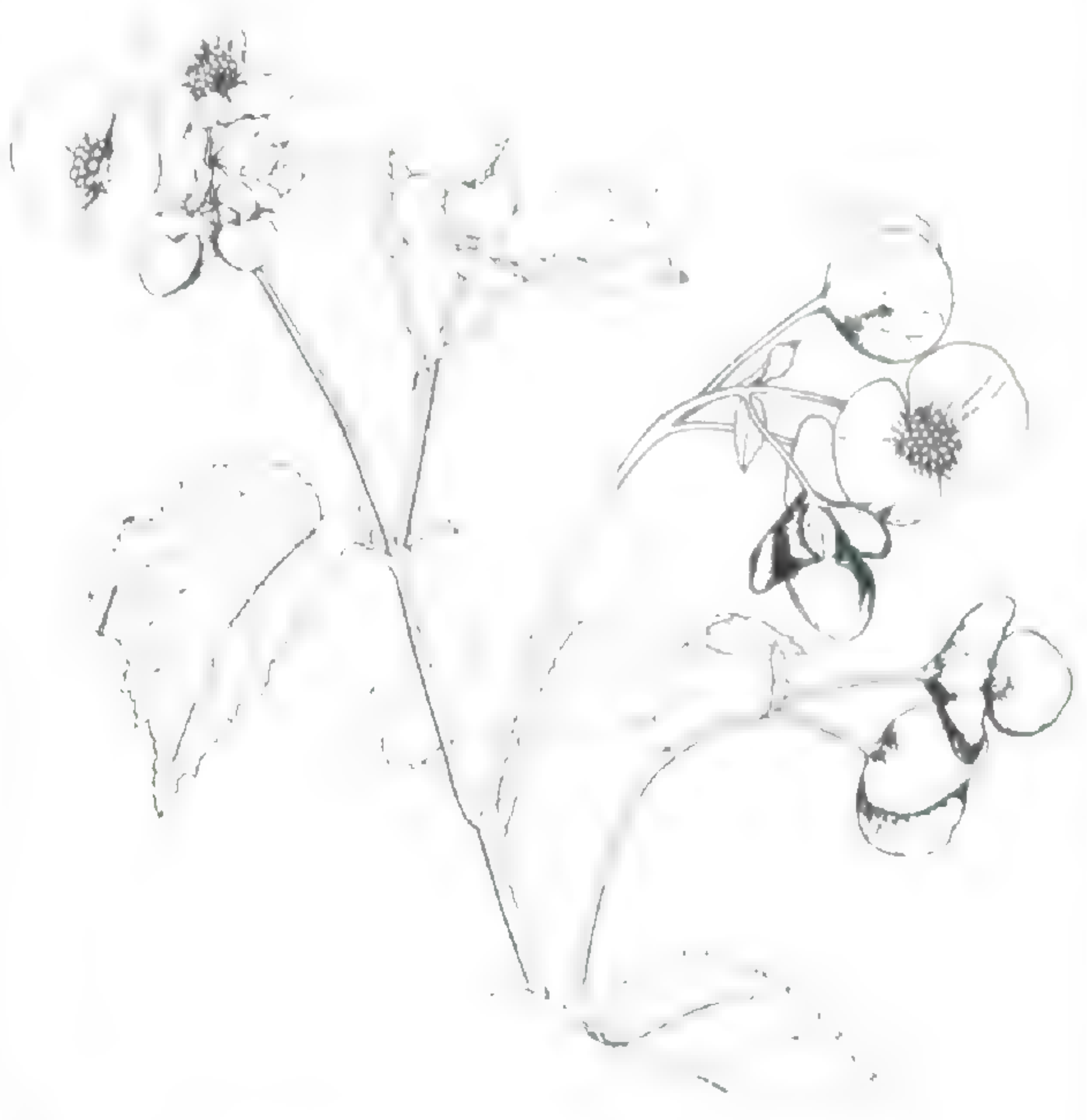
MEMORIAL PAINTING: (at left): An original watercolor of *Clematis riehlii* var. *fremontii*, Fremont's leather flower, was presented to the Garden in honor of the Garden's late Trustee, Timon Primm. The artist, Carol Sutherland, worked with Mr. Primm at the Missouri Chapter of The Nature Conservancy for many years. The Nature Conservancy is a non-profit conservation organization that works to protect wild species and their habitats. Fremont's leather flower is a species native to the glades of eastern Missouri, and was one of Mr. Primm's favorites.

New Orchids from Thailand Added to Collection

Through a generous contribution by Dr. Pisit Voraurai, Chiang Mai University, Chiang Mai, Thailand, the Garden's orchid collection has been enriched with cultured seedlings of selected clones of four *Dendrobium* species and one *Cymbidium* species. This donation helps the horticulture division meet its goal of increased diversity and quality in its living permanent collections. Dr. Voraurai's generosity is greatly appreciated. The new orchids will be on display when they reach maturity.

IMS Grant Supports Horticultural Survey

The Institute of Museum Services has awarded the Garden a $25,000 grant to conduct a horticultural survey of its woody outdoor plants. The survey will cover all 8,000-10,000 woody specimens on the grounds, and includes environmental and site conditions, pathological data, curatorial records, and literature-derived data. The information will be entered into the Garden's computerized database, and will lead to a curatorial action plan for treatment of the collection. Don Mee has been hired as survey specialist. He is working with Dr. Steven Cline, consulting plant pathologist, and Garden staff. The project is under the supervision of Dr. George Rogers.



Rock-dwelling *Begonia* from Taiwan

A *Begonia* species new to science, known only from Taichung and Chiayi counties of Taiwan, has been named in honor of Dr. Peter H. Raven for his contributions toward the advancement of plant systematics and evolution. Dr. Ching-I Peng, a former doctoral student of Dr. Raven, discovered and named the plant.

This species, *Begonia ravenii*, is characterized by tubers and stolons which terminate in tubers. This growth habit produces an entangled mass that attaches the plant securely to the steep rocky slopes it inhabits in the wild. Pink to pale purple flowers are borne on erect plants 50 centimeters tall at maturity.

Tubers hand-delivered by Dr. Peng are being grown for future display in the Climatron. Look for this unusual *Begonia* when the Climatron reopens.

Planned Giving *Program Offers Seminar*

"Giving requires good sense"—*Ovid.*

The Missouri Botanical Garden, Henry Shaw's own delight and life-long interest, became the memorial to his life through his will. Mr. Shaw displayed eminent good sense by careful preparation of a will, in fact, more than one will, to be sure that his property would be distributed as he wanted. His will was the link between his life and his goal—the wish to have others, particularly future generations, share in his vision. The Garden has instituted the Planned Giving Program to provide its Members with information and assistance in evaluating their estate plans.

A will is the vehicle that allows a lasting connection between an individual and the people and interests that person holds most dear. As in Shaw's case, a will can create a memorial that distributes a person's present achievements into future generations.

While it is rewarding, executing or revising a will is immensely practical—and very good sense. It is estimated that more than 50 percent of Americans die without a will. For these people, the state decides how their property will be distributed, and these decisions could be in conflict with the deceased's wishes.

As a service to interested Members, the Garden will hold a Wills Seminar on March 29 at 9:30 a.m. in the Garden Room, Ridgway Center. The presentation will discuss the importance of a will and will preparation, including a period for questions and answers. This seminar is useful both for those who have not yet made out a will and also for those who have a will, but perhaps have not reviewed it for some time. Seating is limited, and reservations can be made by returning the form provided or by calling 577-9532.

Planned Giving Seminar

Return to: Planned Giving, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166.

Name____________________

Address____________________

Phone____________________

Number of persons in my party__________

☐ I would like more information on planned giving options. Please have Ernestina Short contact me.

So that the information can best be tailored to my needs, my age is:

☐ under 50 ☐ 50 or over

NEWS FROM SHAW ARBORETUM

Native Plant and Wildflower Area

In December, 1988, the Garden received a very generous gift from Blanton J. Whitmire to develop and maintain a native plant and wildflower area at Shaw Arboretum. The gift was a tribute from Mr. Whitmire in honor of his wife, Peggy.

The area will contain only wildflowers, shrubs and trees that are native to Missouri, and will be laid out in a plan of trails and paths similar to the English Woodland Garden at the Garden. In a meadow adjacent to the woodland site, a prairie area will be incorporated to display typical prairie wildflowers and grasses. The exhibit will be designed to educate visitors in the importance of native plants, using signs, labels and trail guides.

"This splendid new addition coincides with the beginning of planning for the overall development of the Arboretum, and we are delighted with Mr. Whitmire's very generous gift and with the wonderful opportunities it presents," commented Dr. Raven.

Master Plan for Arboretum

The Edward K. Love Conservation Foundation has approved a grant of $75,000 for the development of a Master Plan for Shaw Arboretum. The plan will be prepared by Environmental Planning and Design (EPD) of Pittsburgh, who have been master planners for the Garden for the past 15 years. Representatives of EPD met with Garden and Arboretum staff in January to begin the planning process.

The Arboretum has added nearly 50 percent to its area since the original tract was purchased in the 1920s. Attendance has more than doubled over the past five years. In order to meet these increasing demands, and to realize fully the Arboretum's potential as a facility devoted to environmental education and conservation, a comprehensive plan for its development is of critical importance.

"I cannot think of any contribution more fundamental to the future of the Arboretum than the development of a proper master plan at this time," Dr. Raven said. "It will ensure its maximum utility to the people of the area." The plan is expected to be completed in 1990.

Extended Hours for Loop Road

From April 5 through November 9, the Trail House Loop Road will be open to vehicles from 8 a.m. to 4 p.m., every Wednesday and Thursday. This extends the length of time the Loop Road is open to include the months of July and August. For more information please call the Arboretum at 577-5138.

IN MEMORIAM

George D. Greene

Staff and friends of the Garden were saddened by the death last November of George D. Greene, who held the title Curator of Old Roses at the Garden. Mr. Greene was committed to the study and preservation of old rose cultivars, and in 1968 he formed the Old Rose Committee with Mrs. John S. Lehmann, Derek Burch, Edgar Anderson, and Walter Lewis. Mr. Greene's enthusiasm and hard work added much to the development of the rose collection at the Garden, and specimens of old English shrub roses are part of the Lehmann Rose Garden today.

Grant To Train Teachers in Environmental Science

The Missouri Botanical Garden's education division has received a National Science Foundation grant of $128,133 to help train St. Louis area teachers in ecology and environmental science. The title of the project is "A Short Course in Ecology and Environmental Science for Teachers: Grades 4-8." It will provide 50 hours of environmental science instruction annually to a total of 90 teachers over a three year period. Course instructors will be experienced and skilled educators, scientists, Garden staff, community experts and master teachers. The training will take place at the Garden and Shaw Arboretum in Gray Summit, Missouri.

The course will provide participants with practical ideas and materials for their classrooms, training in teaching ecology and environmental science, and continued access to community resources that support teaching. The teachers will develop their own projects to be used and evaluated in their classrooms. Participants will receive stipends and earn three graduate credits toward science certification.

Thirty participants will be selected annually for the project from public and private city and county schools. Interested teachers may apply after February 1, 1989 and must currently be teaching in grades 4-8 and have an interest in developing classroom materials in environmental sciences. For more information, call 577-5140.

Planning Begins for Garden's Magnet School

The Garden's education division has received a $20,000 planning grant from the St. Louis Board of Education. The funds will be used for preliminary planning of a new St. Louis Public Magnet school, the Missouri Botanical Garden Middle Investigative Learning Center (ILC) at Mullanphy School. This innovative concept involves close cooperation with the St. Louis Zoo and the Science Center. It is one of the few programs in the country combining schools with the resources of local cultural institutions.

Garden staff members have begun developing a full curriculum for the 6th, 7th and 8th grade students who will attend. Mullanphy School is located at 4221 Shaw Blvd., a short walk from the Garden in southwest St. Louis. This exciting new program will offer increased academic opportunities to students from St. Louis City and County alike.

There are currently two ILCs in the St. Louis Public Schools' Magnet program. They utilize the scientific inquiry approach with elementary and middle school students. Academic emphasis is on the application of logical analytical thought to all subject areas. The balanced curriculum will be enriched by the Garden staff's expertise in environmental science. Like the Garden, the St. Louis Science Center also will be associated with an ILC, Stix Elementary School at 226 S. Euclid.

As a first step in the Magnet planning process, the education divisions of the Garden and the Science Center co-sponsored a conference held at the Garden on December 15-16, 1988. The James S. McDonnell Foundation supported the conference, titled "Learning Science and Mathematics: Applications of Research for Effective Classroom Instruction". The program featured seven nationally recognized education experts and researchers. The 150 participants discussed how children learn, and new ways of matching teaching and technology to individual students' needs.

HENRY SHAW ACADEMY NEWS

Grant Helps Explorers Attract Minority Students

The Garden's Henry Shaw Academy Explorers program has received a scholarship aid grant of $5,000 from the St. Louis Community Foundation. The money will help the Explorers program in its ongoing effort to attract qualified minority students.

The Explorers program is for 14 to 18 year-old students who already have a background in general science or biology. It uses field research methods to study the diversity of the Earth's ecosystems. Explorer members have monthly weekend sessions and take field trips to such locations as Missouri caves, state parks, the Smoky Mountains and the Arboretum. The grant will help pay costs of these activities for scholarship students.

The program offers a full year's credit in high school elective biology to students who attend the monthly sessions and satisfactorily complete independent field projects and journals. Those students who also demonstrate outstanding skills in leadership and field research are eligible for a summer field trip to the tropics.

The program runs from September through June. Fifteen Explorer positions will be available to applicants next fall. Interested students should call the Garden education department now for an application form. Call 577-5135 or 577-5140 for more information.

Explorers' Winter Field Research Trip

In December the Explorers studied cave ecology in southern Missouri at the Ozark Underground Laboratory, a privately owned cave that has been designated as a National Natural Heritage Landmark. It features the most diverse animal life of any cave west of the Mississippi, and is operated as a field study, research and education facility.

On their weekend field trip the Explorers learned about underground water movement and wise resource management in cave regions. The students also studied the biology of underground ecosystems.

This spring the Explorers' monthly sessions will study the Garden's research program in tropical botany, the work done by the Center for Plant Conservation, and the St. Louis Zoo's research programs in Madagascar and Asia. The Explorers will spend a long weekend in April studying wildflowers and plant zones in the Great Smoky Mountains.

HSA Spring Programs

The Henry Shaw Academy offers students ages 7 to 18 exciting ways to investigate topics in science, ecology and natural history. A membership in the Academy is $15 per year, and includes newsletters, a membership card, invitations to classes and special events, and an Academy T-shirt.

Spring activities include river trips, tree planting classes, art in nature, pond studies, the River Faces Parade, trips to the Arboretum and more. For a complete spring brochure and information on all Academy activities, call 577-5135 or 577-5140.

Love Foundation Makes Third Annual Gift to Library

The John Allan Love Charitable Foundation has for several years made generous gifts to various operating and special needs of the Garden. In 1988, for the third year in a row, it has contributed $5000 toward the acquisitions of *Banks' Florilegium*, informally known as the "Captain Cook Prints." Executed shortly after Captain James Cook's return from his exploratory voyage to the South Seas in the 1790s, the entire 738-plate set of these beautiful botanical engravings has never before been published in its entirety. Far from being of mere historical interest, the illustrations of flora observed on that voyage are invaluable to scientists working today. The Garden is the only botanical institution in the United States, and one of only five U.S. institutions of any type, to subscribe to the series.

Japanese Festival In Top 100

The fifteenth annual Japanese Festival, scheduled for August 26 through September 4, 1989, has been selected as one of the "Top 100 Events in North America." The list is compiled each year by the American Bus Association and represents "the cream of the crop in events that collectively offer a wide variety of travel experiences." The Top 100 are heavily promoted as choice destinations for motorcoach tour groups. The events are selected by a committee of travel professionals who consider the appropriateness of the event for the traveling public, its level of community support, the function's national reputation and expected attendance. The 1988 Japanese Festival had 65,000 visitors.

IN MEMORIAM / *Agnes Friedman Baer*

Agnes Baer, a well-known St. Louis philanthropist and artist, passed away in November 1988, representing a great loss to the Garden and to the St. Louis community. Mrs. Baer was a member of the Stix family who have long been known in St. Louis for their commitment to civic causes. Mrs. Baer was especially committed to education, to art in many forms, and to the Garden, generously supporting many capital improvement programs over the years. Her devotion to the Garden was manifest in a quiet, steadfast generosity of spirit that is rarely equalled.

As an artist, Mrs. Baer worked imaginatively in metals as a silversmith; she also worked in watercolors, and in needlework. She travelled widely and especially appreciated the gardens of the Orient. Seiwa-En was one of her favorite Garden features.

YELLOWHORN IS IN BLOOM: This spring don't miss the striking white blossoms of the yellowhorn *(Xanthoceras sorbifolium)*. Look closely—each flower has a yellow mark that changes to red. This curious member of the Soapberry family *(Sapindaceae)* is native to China. See it just east of Tower Grove House.

From the Garden Gate Shop

Easter Is Just Around the Corner

The Shop is brimming over with Easter decorations! There are charming bunnies in all materials, sizes and shapes; an expanded selection of the latest gardening accessories for spring planting; and a vast collection of gardening books for every purpose. The Plant Shop features miniature roses in a rainbow of colors. Gift certificates are always available.

Spring Plant Sale: 20% Off for Members

April 27 and 28, 9 a.m. to 6 p.m.
April 29 and 30, 9 a.m. to 5 p.m.

Spring is here in all its beauty, and the Spring Plant Sale is the time to celebrate. Visit the display in the Orthwein Floral Hall and in the Shop for the loveliest of spring flowers, plants, gifts and books. Members receive a 20 percent discount on all merchandise, all four days.

Tower Grove House Welcomes Student Intern

Michael K. Davenport, an undergraduate at Southeast Missouri State University, is spending his spring semester in an internship at Tower Grove House. Mr. Davenport is working on the inventory of furnishings in the house, researching Henry Shaw's papers and other historical materials to attempt to finish documenting all of the items in the collection. This work will aid the Historical Committee in its project of restoring the furniture in the Tower Grove House. Southeast Missouri State is one of the few schools in the country offering a degree program in historic preservation.

The CAMPAIGN for the Garden

Challenge Goal Exceeded

The Campaign for the Garden closed 1988 with $14.2 million in gifts and pledges, successfully meeting the terms of a major challenge grant from The Kresge Foundation. In making its grant last April, the Foundation stipulated that the Garden would receive the $650,000 award upon raising $1.7 million still needed at that time to complete funding for the $6.5 million Climatron, the Campaign's primary component.

Peter H. Raven, the Garden's director, said, "We are pleased and excited about our progress thus far, and I want to take this opportunity again to express our deep gratitude to The Kresge Foundation for their vote of confidence at a very critical point in the drive. We met the Kresge terms by year end, seven months ahead of schedule, which wraps up fund raising for the Climatron and allows us to devote our energy to raising support for the remaining components of the campaign—the new Temperate House, the Interpretive Center on the Tropics, and the Center for Home Gardening Pavilion."

Fundraising for all components of the Campaign for the Garden is scheduled through December 31, 1989. Gifts to date have been received from Members, friends, corporations, and foundations. Dr. Raven noted that, "We are so very grateful to all those contributors whose generosity has helped us get this far, but let me also stress that in this final year we continue to need the community's help and support very much."

Behind the Scenes

Division of Research Is Reorganized

The Garden's Division of Research has announced several important changes in its organization, effective December 1, 1988. The Division of Research now is made up of six departments, all reporting to the director of research, Enrique Forero. The six departments and their heads are: Botanical Information Management, Nancy Morin; Bryology, Robert Magill; Graduate Studies, Peter Hoch; Herbarium, James Solomon; Research, which continues to be headed by Warren Douglas Stevens; and Scientific Publications, George Rogers.

The department of Botanical Information Management assumes some of the responsibilities of the division of Botanical Information Resources, which was dissolved when Marshall Crosby was appointed assistant director of the Garden. Under the supervision of Nancy Morin, it includes TROPICOS (the Garden's database system), the Flora of North America and Flora of China projects.

Robert Magill is now in charge of research on bryophytes and will continue his studies of tropical African mosses.

The newly-created department of Graduate Studies is headed by Peter Hoch, who has been actively involved in the coordination and development of the Garden's graduate program for several years.

James Solomon, who replaces Nancy Morin as curator of the Herbarium effective February 1, 1989, was the Garden's resident botanist in Bolivia for several years.

The Research department, which has been headed by Warren Douglas Stevens since March 16, 1988, includes the Garden's programs of research and exploration in Africa and Latin America, and is different from the Division of Research as a whole.

George Rogers, who has been editor of both the *Annals of the Missouri Botanical Garden* and the *Monographs in Systematic Botany from the Missouri Botanical Garden* since January 1, 1987, is now head of the new department of Scientific Publications.

The Garden's Library will remain as a separate unit reporting directly to the director of the Garden, Peter H. Raven.

Mellon Foundation Grant for Study in Peru

The Andrew W. Mellon Foundation has awarded a three-year grant of $650,000 to the Garden to support ongoing study of the plants of Peru. The project seeks not only to collect and identify plants, but to make the information about those plants more accessible to scientists around the world. Peru is considered by many to be botanically the richest country in the world.

The grant is part of a $950,000 award from the Mellon Foundation to support the Garden's work in Peru and other activities in Latin America. Those activities will be featured in a subsequent issue of the *Bulletin*.

Dr. Enrique Forero, director of research for the Garden, said the grant will have tremendous impact on the botanical research program in Peru. "The grant will enable us to continue extensive field work, to refine the quality of information gathered, to publish a checklist of the plants of Peru, to bring our computerized database up to date, and to support graduate students in the field."

The Mellon Foundation previously supported a Garden program resulting in 50,000 plant specimens collected and a substantial updating of information on the plants of Peru. A portion of that funding also supported development efforts for the Garden's innovative new computer database, TROPICOS (see the *Bulletin*, January-February 1989).

Tributes

NOVEMBER - DECEMBER 1988

In Honor Of:

Mrs. Joan Abrams
Mr. and Mrs. Rudolph Freedman

Mr. Norris Allen
Mr. Bertram Mohr

Mr. Melvin Barad
Teel Ackerman
Martin Israel
Mr. and Mrs. Melvin S. Strassner

Miss Lisa Barrett
Mr. and Mrs. Robert W. Streett

Mr. and Mrs. Robert Bransford
Dr. and Mrs. John C. Herweg

Mrs. Matthew Carter
Mr. and Mrs. John L. Davidson, Jr.

continued on next page

Dr. Charles Eckert
Mrs. Samuel D. Soule
Mr. Jack Edlin
Ms. Ruth Kay
Mr. and Mrs. Jack Edlin
Mr. and Mrs. Lester Bamberger
Mr. and Mrs. Joseph Berger
Mr. and Mrs. Robert L. Buell
Mrs. Carl Glaser, Jr.
Mr. and Mrs. Sam Langsdorf, Jr.
Mr. and Mrs. Melvin Mednikow
Mrs. A.L. Netter, Jr.
Mr. and Mrs. Edward F. Ruprecht
Mr. and Mrs. Joseph F. Ruwitch
Mr. and Mrs. Arthur Scharff, Jr.
Mr. and Mrs. Norman H. Spitzer
Mr. and Mrs. Joseph Steinbach
Mr. and Mrs. Charles J. Steiner
Mr. and Mrs. Edward J. Turner
Miss Elizabeth Gray Elliott
Mr. and Mrs. Robert W. Streett
Leah Esther
Dr. and Mrs. Alfred S. Schwartz
Dr. and Mrs. I. J. Flance
Mrs. Ben H. Senturia
Mr. Marvin Gerchen
Mr. Bud Rosen
Mr. Eugene Harris
Mr. and Mrs. Paul Ullman, Jr.
Mr. and Mrs. Bruce Hecktman
Mr. and Mrs. Charles J. Cook
Anne and Jack Heisler
Dr. and Mrs. David M. Kipnis
Miss Caroline Helmkampf
Mr. and Mrs. Robert W. Streett
Mr. and Mrs. Ronald E. Henges
Mr. and Mrs. J. Joseph Horan
Mr. Stanley Hollander
Mr. and Mrs. Jack Ansehl
Mr. Richard O. Hommel
Dr. and Mrs. Oscar H. Soule
Mr. B. D. Hunter
Mr. R.J. Marischen
Mr. and Mrs. Charles J. Cook
Mr. and Mrs. Stanley F. Jackes
Mr. Stanley Mulvihill
Mrs. J. A. Jacobs
Mrs. Helen C. Maurer
Mrs. Katherine Kercher
Sowing Circle Garden Club
Mrs. Paula Kipnis
Lowry-Moore Society
Washington University School of Medicine-Pharmacology Department
Mrs. Mary Jane Kirtz
St. Louis Herb Society
Mr. and Mrs. Martin Koshner
Dr. and Mrs. Arthur E. Carlson
Mr. Bernard Manlin
Mr. and Mrs. Philip N. Hirsch
Mr. John L. Masek
Rowena Clarke Garden Club
Dr. Peter H. Raven
Mrs. Henry L. Freund
Mr. and Mrs. Michael H. Freund
Dr. and Mrs. David M. Kipnis
Mrs. Willard L. Levy
Margie Wolcott May
Mrs. Norma Silber
Mr. and Mrs. Louis I. Zorensky
Dr. and Mrs. Peter H. Raven
Mrs. Jane A. Jacobs
Mr. and Mrs. Herbert Ribstein
Mr. and Mrs. Perry N. Sparks
Mr. David Rice
Mrs. Christine Berg
Mr. John Berg
Mr. and Mrs. Robert A. Ridgeway
Mr. and Mrs. Oscar P. Hampton III
Mr. and Mrs. John D. Rosebrough
Mr. and Mrs. Bernard Mellitz
Mr. and Mrs. Milton Mill
Mr. Robert Rosenheim
Mrs. Jane A. Jacobs
Miss Margaret Ross
Rod and Pat Wiltse
Mr. Joseph Ruwitch
Dr. and Mrs. James Bush
Mr. and Mrs. Jack E. Edlin
Mr. and Mrs. Harvey Hieken
Mr. and Mrs. Oliver M. Langenberg
Mr. and Mrs. Melvin Levi
Mr. and Mrs. Richard Prager
Dr. and Mrs. Llewellyn Sale, Jr.
Mr. and Mrs. Frank P. Wolff, Jr.
Mr. Harold Sachs
Mr. and Mrs. William B. Eiseman, Jr.
Dr. and Mrs. T. E. Sanders
Mr. James L. Sloss, Jr.
Mrs. William Schield
Gretchen Vanderschmidt
Mr. Tom Schweizer
Mr. and Mrs. Bert Schweizer
Ms. Ruth B. Seldin
Mrs. Natalie F. DuBois
Mrs. A. W. Shapleigh
Mr. and Mrs. Carl Meinhardt
Mr. and Mrs. Frank B. Shelden
Dr. and Mrs. Robert E. Ziegler
Mrs. Jackson Shinkle
Mrs. Henry Scherck
Mr. and Mrs. James W. Singer, Jr.
Mr. and Mrs. Joseph Tucker
Mrs. Ruth Stampfer
Mrs. Jean S. Bloch
Miss Melissa Gabriel Stern
Mrs. Herbert S. Schiele
Mr. and Mrs. Robert W. Streett
Mrs. Albert C. Stutsman
Mr. Keith S. Wilson
Brian and Brenda Ward
Mr. and Mrs. D. Goodrich Gamble
Dr. and Mrs. Helman Wasserman
Mrs. Ben H. Senturia
Janet and Ted Weakley
Mrs. Amey R. M. Rodgers
Mrs. Robert Wegusen
Teel Ackerman
Martin Israel
Mr. Tommie Wilson
Mrs. Jeanne E. Martin
Mr. Dick Wyman
Mr. and Mrs. Herbert M. Talcoff

In Memory Of:

Helen A. Allbaugh
Ms. Carla J.Klein
Ms. Margaret Klein Rinegar
Mrs. Maury Artstein
Mr. and Mrs. Robert A. Cappiello
Mrs. Agnes F. Baer
Mrs. A. V. L. Brokaw
Ms. Elaine Cohen
Mr. and Mrs. Charles J. Cook
Mrs. Michael W. Freund
Miss Elizabeth Goltermann
Dr. and Mrs. Peter H. Raven
Mr. and Mrs. Robert L. Rosenheim
Mr. and Mrs. Joseph F. Ruwitch
Mr. and Mrs. J. Henry Schweich
Mrs. Helen G. Shifrin
Mr. and Mrs. James A. Singer
Dr. and Mrs. Richard G. Sisson
Mrs. Samuel D. Soule
Mrs. Malcolm Steiner
Mr. and Mrs. Paul Ullman, Jr.
Mr. Robert H. Baxter
Mr. and Mrs. Richard L. Bushman
Mrs. Vilma A. Begeman
Mr. and Mrs. Arthur F. Boettcher, Jr.
Mr. and Mrs. Charles J. Cook
Price Waterhouse
Luther F. Blackmore
Polly C. Blackmore
Mr. Roger W. Blackmore
Mr. and Mrs. Robert C. Long
Dr. Vilray P. Blair, Jr.
Mrs. Alexander M. Bakewell
Mr. and Mrs. Andrew H. Baur
Mrs. Robert Cochran
Mrs. A. Timon Primm III
Mrs. Martha N. Simmons
Bud and Ida Steinberg
Mrs. Taschia Thies Bokern
Mrs. George W. Skinner
Miss Hedwig Breckner
Mrs. Alice Beffa Erdelen
Mrs. Edith Brock
Clayton High School-Science Department
Helen Kottemann
Rock Hill Garden Club #1
Mel and Marian Sheehan
Mr. Ed Cahill
Mrs. J. Paul Biesterfeldt
Mr. and Mrs. Robert O. Nellums
Mr. George H. Capps
Mr. and Mrs. John H. Biggs
Mr. Robert Donald Carson
Mr. and Mrs. Edward F. Ruprecht
Mr. Wilson D. Child
Mr. and Mrs. Dolph O. Boettler
Rev. Coles
Ms. Melanie L. Gibbs
Mr. Richard Connors
Mrs. Joseph A. Richardson
Dr. Eugene R. Corey
Mr. and Mrs. Alex Drumheller
Mr. Alfred Hortmann
Mr. and Mrs. Joseph Tucker
University of Missouri-St. Louis students
Mr. and Mrs. Phillip L. Yagla
Mr. and Mrs. William Costello
Mr. Stephen P. Mullin
Mrs. Betsy Reynolds Crump
Mrs. James M. Crump
Mr. Raymond J. Cyran
Missouri Botanical Garden-Library Staff
Mrs. Elsie Davis
Mrs. Patricia A. Ohmer
Mrs. Leopoldine Davis
Mr. and Mrs. Donell J. Gaertner
Mr. and Mrs. Gustav F. Goetsch
Marlit Warmann
Mrs. Ruth S. DeFabio
Mr. and Mrs. Thomas A. Parshudie
Mr. Anthony DeNatale
Mr. and Mrs. D. L. Meek
Mrs. Edward Deutch's Father
Mr. Bernard A. Barken
Mrs. Jocelyn Barken
Mr. and Mrs. Albert S. Dexheimer
Mrs. Georgia D. Schwartz
Mrs. Viola Dilg
Mr. and Mrs. Leonard R. Kantor
Mr. John Dunsford's Mother
Mr. and Mrs. Henry Ordower
Mr. Lester Ebert
Mrs. William H. Leyhe, Jr.
Mrs. Beatrice Edison
Mr. and Mrs. Willard Fonarow
Mr. and Mrs. Richard B. Rosenthal
Mr. and Mrs. Brent Stansen
Mr. and Mrs. Herbert M. Talcoff
Mrs. Janice Evans
Mr. and Mrs. Donald H. Long
Mr. Harold Fitch
Mr. Stephen P. Mullin
Mrs. Jane Forsell
Early Education Center-Staff and Board
Mrs. Mary Dorothy Freeze
Mr. and Mrs. Ray T. Eddins
Dr. Charles Galt
Mr. and Mrs. Erwin M. Meinberg
Dr. George Gantner, Jr.
Mr. and Mrs. Richard W. Baizer
Mr. Goswin Gern
Mr. and Mrs. Daniel H. Goetz
Mrs. Lilly S. Gildehaus
Mr. and Mrs. George B. Hagee
Ms. Kay E. Mallett
Mr. and Mrs. C. Robert Pommer
Mr. and Mrs. Don Wohltman
Mr. and Mrs. Randolph C. Wohltman
Mr. Kelton Gilleland
Mr. and Mrs. Charles W. Freeman
Carl F. Gissler
Mrs. E. R. Hurd, Jr.
Mr. and Mrs. M. Alexander Jones
Mrs. Edna Graf
Miss Margaret C. Schmidt
Mr. Rice A. Green
George and Weens Bishop
Mr. George D. Greene
Mrs. Elmer F. Hirth
Mr. and Mrs. Charles F. Limberg
Mr. and Mrs. Harold S. Sheldon
Study Club
Study Club Friends
Mrs. Alice F. Greensfelder
Mr. and Mrs. Lester R. Adelson
Mrs. June Y. Ebert

continued on next page

Tributes

continued

Mr. and Mrs. Myron Glassberg
Ms. Paula Griffith
Mr. M. Henry Johnson, Jr.
Ms. Fran Lozano
Ms. Barbara C. Niebruegge
Mr. and Mrs. Richard Prager
Ms. Laura Staley
Ms. Wendy M. Steffen
Ms. Enid Waldvogel

Mr. James D. Harrison
Mrs. William H. Leyhe, Jr.

Mr. L. A. Harrison
Dr. and Mrs. Leonard L. Davis, Jr.

Mrs. Hart
Gallaudet School Staff

Mrs. Ann Elizabeth Heaton
Mrs. Thomas W. Shields

Mr. and Mrs. Paul A. Hein, Sr.
Mr. and Mrs. Leo A. Steck

Mrs. Agenes Henderson
Mr. and Mrs. Ray T. Eddins

Mr. George J. Herbst, Jr.
Dr. Helen M. Aff-Drum
Mr. and Mrs. Robert Arnett
Dr. and Mrs. Joseph A. Bauer
Mr. and Mrs. Walter A. Beckers
Mr. and Mrs. John B. Biggs, Jr.
George and Weens Bishop
Mrs. William Bixby, Jr.
Mr. and Mrs. W. H. Bromley, Jr.
Mr. and Mrs. John G. Buettner
Peggy Bussmann and Family
Mr. Jules D. Campbell
Mr. and Mrs. Floyd Chapman, Jr.
Mr. and Mrs. Buzz Clift
Mr. and Mrs. Charles A. Dill
Mr. James W. Edwards
Mr. and Mrs. M. W. A. Edwards
Mr. and Mrs. Peter D. Ehrenhaft
Mrs. Edgar W. Ellermann
Mr. and Mrs. William H. Engelsmann
Mrs. Edward W. Fredrickson
Mrs. Armand D. Fries
Mr. and Mrs. Donald Gerard
Mrs Warren Gladders
Good Buy Syndicate
Mr. and Mrs. L. J. Grigsby
Mrs. Raymond L. Gross
Mr. and Mrs. James W. Guth
Dr. and Mrs. Paul O. Hagemann
Mrs. Virginia Haley
Kathy, Fred, Kara and Tim Hanser
Mr. and Mrs. T. Walter Hardy, Jr.
Mr. and Mrs. George J. Herbst III
Mrs. Margaret Herbst
Mrs. Elmer F. Hirth
Mr. and Mrs. Roy W. Jordan
Mr. and Mrs. Lyman C. Josephs
Mr. and Mrs. Robert C. Kane
Mrs. Charles D. Kelly
Mr. and Mrs. James J. Kerley
Mr. and Mrs. Albert D. Krueger
Mr. and Mrs. Thomas F. Latzer
Mr. and Mrs. William W. Lewis
Mrs. Wilfred F. Long
Mr. Douglas B. MacCarthy
Mrs. Minard T. MacCarthy
Mr. and Mrs. Clem L. Maher
Laura H. Manchester
Mr. and Mrs. William Marre
Mr. and Mrs. James K. Mellow
Mrs. Charles W. Middleton
Mr. and Mrs. Robert H. Mooney
Mr. and Mrs. H. B. Morris
Mr. and Mrs. Fred A. Oberheide
Mr. and Mrs. W. Anderson Payne
Mr. and Mrs. C. Robert Pommer
Dr. and Mrs. Don S. Pruett
Mr. and Mrs. G. Kenneth Robins
Mr. and Mrs. Seth A. Robins
Mrs. Robert J. Ryan
Mr. and Mrs. Joseph M. Scammon
Mrs. Thomas W. Shields
Mr. and Mrs. H. Parker Smith
Mr. and Mrs. William Wischmeyer
Mr. and Mrs. John J. Wuest

Marta Hinck's Father
Ms. Teresa A. Dresler

Mr. Edwin F. Hoch
Kirkwood Lodge No. 484

Mrs. Bernice Hougland
Ms. Wendy Ruben

Mr. William Hubachek
Mr. and Mrs. Marcus M. Becker
Family and Friends

Mrs. A. Clifford Jones
Mr. and Mrs. George K. Conant, Jr.

Mr. A. Clifford Jones, Jr.
Mrs. Phoebe S. Burke
Mr. Spencer B. Burke
Mr. and Mrs. Robert B. Hess
Mr. and Mrs. George K. Hoblitzelle

Mrs. Ann Jones
Orchid Society of Greater St. Louis

Mary Alice Jones
Dr. and Mrs. Ronald K. McGregor

Mr. Ben Kahn
Mrs. Hubert C. Moog

Mr. Gerald Kelly
Miss Margaret L. Fisher

Mrs. Oather Kelly
Mrs. A. Wessel Shapleigh

Mr. Robert T. Kemper
Ann Kemper and Children

Anthony Key
Kenny Key, Jr.
Mrs. Howard Hubbell

Mrs. Robert R. Koch
Mrs. George D. Pring

Mrs. Eleanor Koerner
Mr. and Mrs. Rodney Schury

Mr. Carl Kottmeier
Mr. and Mrs. Alwien Dierl
Mr. and Mrs. Clarence T. Wilson

Gus Krietemeyer
Imogene Krietemeyer
Mr. and Mrs. William S. Harrenstein

Mrs. Edna Kundert
Mr. and Mrs. Raymond J. Kersting

Mr. and Mrs. Charles Lamy
Mr. and Mrs. John R. Brightman

Mr. Art Lange
Mr. and Mrs. Arthur W. Anderson

Dr. Paul C. Langenbach
Mr. and Mrs. Donald A. Branson
Mr. and Mrs. Charles A. Quinn
Mr. and Mrs. Robert L. Schumann
Miss Audrey Shearer

Mrs. Chrystal Leach
Mr. and Mrs. John C. Hamm
Mr. and Mrs. Daniel C. Hurley
Mr. R. J. Sauget
Weimaraner Club of
Greater St. Louis

Mr. Willard Levy
Mr. and Mrs. Lester R. Adelson
Mr. Bernard A. Barken
Mrs. Jocelyn Barken
Mr. and Mrs. John H. Biggs
Mr. and Mrs. Henry W. Dubinsky
Mrs. Henry L. Freund
Mr. and Mrs. Thomas Rosen
Mrs. Richard Weiss

Mrs. Eleanor Lewis
Dr. and Mrs. T. E. Sanders

Mrs. MacMillan Lewis
Mr. and Mrs. Samuel M. Kennard III

Mrs. Emily Kimball Lilly
Mr. and Mrs. John G. Goessling

Mrs. Dorothy Link
Mrs. Marion V. Fisher

J. Glenn Logan
Mr. and Mrs. Peter E. Sargent

Mr. H. E. Lueders
Mr. and Mrs. Harvey Hieken

Mrs. Joyce Lynch
Dr. and Mrs. George E. Mendelsohn

Mr. Gorden MacDonald
Mrs. Robert H. Kittner
Mrs. Thomas W. Shields

Mr. George P. Massengale
Mr. and Mrs. Hugh R. Mug

Dr. Richard Maxwell
Mr. and Mrs. Fred Pillsbury

Mr. Lansden McCandless
Mr. and Mrs. Alexander Cornwell, Jr.
Mrs. Howard Hubbell
Mr. and Mrs. John K. Lilly
Mr. and Mrs. Edwin G. Russell
Mrs. A. Wessel Shapleigh
Mr. and Mrs. H. Parker Smith
Mr. and Mrs. Edmonstone F.
Thompson
Mr. Harry E. Wuertenbaecher, Jr.

Charles J.R. McClure
Mrs. Philip G. Ackerman

Hon. James D. Meredith
Mr. and Mrs. C. Robert Pommer
Mrs. Joseph A. Richardson

Mrs. Violet Metschke
Richard F. Decker Family

Mr. Melbourne Meyer
Mrs. James Lee Johnson
Mr. and Mrs. Stephen H. Loeb
Mrs. Eleanor J. Moore
Mr. and Mrs. Joseph F. Ruwitch

Mr. Hubert C. Moog
Mr. and Mrs. John H. Biggs

Mrs. Nancy Bowen Murphy
Dr. and Mrs. Antonio I. Longrais

Mr. Clyde W. Myles
Ms. Justina Bricka, Lou and Joe
Mr. and Mrs. Verlin A. Lauher

Mrs. Madeleine Neiswander
Mr. and Mrs. Rudyard K. Rapp

Miss Emily Novak
Mr. and Mrs. Clayton A. Pratt

Mr. William Oelzen
King Family

Mrs. Mary S. Peters
Mr. and Mrs. Clarann Budke
Mr. and Mrs. George K. Conant, Jr.

Mr. Frank Pierson
Mrs. William H. Leyhe, Jr.

Mr. Fred Pillsbury
Mrs. Stanley Hanks

Mr. William H. Plummer
Mr. Robert C. Camp and Daughters

Mr. A. Timon Primm III
Mr. and Mrs. Vernon W. Piper

Mrs. Mae Pruden
Mrs. J. Maver Feehan

Mrs. Dorothy W. Ready
Mrs. Thomas W. Shields

Mrs. Verna Renfrow
Mr. Roger Renfrow

Liz Rinehart
Sunset Hills Garden Club

Mary Alice Rodriguez
Mrs. T. R. Gamble

Mary Watson Roos
Mr. and Mrs. John H. Biggs
Mrs. Edith F. Binder
Mr. and Mrs. Clarann Budke
Mr. and Mrs. George K. Conant, Jr.
Mr. and Mrs. George K. Hoblitzelle
Mr. and Mrs. Arthur K. Howell, Jr.
Mr. and Mrs. Ralph W. Kalish
Mrs. Constance G. King
Mr. and Mrs. William M. VanCleve

Mrs. Charles Rose
Mr. Charles I. Rose

Mrs. Clara B. Roth
Mr. and Mrs. Richard B. Rosenthal
Mr. and Mrs. Walter G. Stern

Florence M. Ryan
Southwestern Bell-
Capital Recovery Division

Robert Ryan
Mr. and Mrs. Clarence T. Wilson

Mr. Sydney Salomon III
Mrs. Leonard R. Duerbeck

Mr. and Mrs. Julian G. Samuels
Mrs. Jane A. Jacobs

Betty Samuelson
Ms. Virginia D. Judson

Marion Schafarzek
Laclede Gas Company

Mrs. Hazel Schlueter
Mr. and Mrs. Glenn Ziemann

Mrs. Marguerite Schoen
Mrs. Jane Fischer

Mrs. Irene Schwebel
Mr. Charles Iselin
Mr. Joseph E. Wuller

Mr. Robert Schwebel
Jean Hudson
Ms. Marietta H. Huitt
Pat Payton
Darryl Redhage
Mr. Don J. Riehn
Mr. John Russell

Mrs. Amelia L. Sheets
Mr. and Mrs. Raymond C. Sheets

Mrs. Bunny Shelton
Mr. and Mrs. John I. Cofer III
Mr. Carl Henderson
Mrs. Vernon McIntire
Mr. and Mrs. Gerald W. Mefferd
Post-Dispatch Composing Room
Don Feldmier
Jack Gibling
Ed Krite
Joe McDonald
Paul Seelman

Mr. and Mrs. Larry Schoeneshoefer
Mr. and Mrs. George H. Stroud

Mrs. Shemmer
Dr. and Mrs. Edward F. Berg

Mrs. Sydney Shoenberg, Jr.
Elizabeth B. Andrews
Anonymous
Arthur Andersen & Co.
Mr. and Mrs. Howard F. Baer
Mr. and Mrs. Lewis W. Baldwin, Jr.
Mr. and Mrs. Joseph H. Bascom
Mr. and Mrs. Thomas R. Beaird
Mr. and Mrs. John H. Biggs
Mrs. William Bixby, Jr.
Mr. and Mrs. Van-Lear Black III
Mr. Robert Burke
Ms. Nancy Cady
Mr. Parker B. Condie
Mr. and Mrs. Charles J. Cook
Mr. and Mrs. Bertram B. Culver, Jr.
Emil DeRenzo
Evan DeRenzo
Mr. and Mrs. Theodore P. Desloge, Jr.
Mrs. Bernard F. Dickmann
Teri Dresler
Mr. and Mrs. Henry W. Dubinsky
Mrs. Arthur A. Dunn, Jr.
Mr. and Mrs. William B. Eiseman, Jr.
Mr. and Mrs. Howard Elliott, Jr.
Mrs. Harry Esserman
Mr. and Mrs. Charles W. Freeman
Mrs. Henry L. Freund
Mr. and Mrs. Michael H. Freund
Mr. and Mrs. S. E. Freund
Mr. and Mrs. Richard J. George
Mrs. Harry Greensfelder, Jr.
The Hager Family
Mr. and Mrs. Richard Halpern
Mr. and Mrs. William Guy Heckman
D. S. Hines
Mr. and Mrs. Henry Hitchcock
Mr. and Mrs. George K. Hoblitzelle
Mr. and Mrs. James H. Howe III
Mrs. Jane A. Jacobs
Mrs. James Lee Johnson
Mr. and Mrs. W. Boardman Jones, Jr.
Mr. and Mrs. Jerome Kalishman
Mr. and Mrs. Willard van Beuren King
Mr. and Mrs. Martin Kodner
Mr. and Mrs. Robert E. Kresko
Mrs. John F. Krey
Mr. Edwin L. Langenberg
Mr. and Mrs. Donn H. Lipton
Mr. and Mrs. Stephen H. Loeb
Dr. and Mrs. Antonio I. Longrais
Mr. and Mrs. William C. Lortz
Mr. and Mrs. Joseph O. Losos
Mr. and Mrs. Henry C. Lowenhaupt
Mr. and Mrs. John Peters MacCarthy
Mrs. John Macrae
Mr. and Mrs. Jerome Mandelstamm
Mr. and Mrs. Earle F. Maricle
Mr. James F. Mauze
Mr. and Mrs. James S. McDonnell III
Mr. and Mrs. Reuben M. Morriss III
Mr. and Mrs. Dolor P. Murray
Mr. and Mrs. Charles W. Oertli
Mr. Charles Orner
Mr. and Mrs. William R. Orthwein, Jr.
Mr. R. Turner Peters
Mr. and Mrs. Vernon W. Piper
Mr. and Mrs. Richard Prager
Mr. and Mrs. Louis R. Putzel
Dr. and Mrs. Peter H. Raven
Dr. and Mrs. Leslie Rich
Mr. and Mrs. George S. Rosborough, Jr.
Mr. and Mrs. Thomas Rosen
Mr. and Mrs. Richard B. Rosenthal
Mr. and Mrs. Edward F. Ruprecht
Dr. and Mrs. Llewellyn Sale, Jr.
Mr. and Mrs. Daniel L. Schlafly
Mr. and Mrs. Warren M. Shapleigh
Mr. and Mrs. Jackson J. Shinkle
Mrs. Martha N. Simmons
Mr. and Mrs. James W. Singer, Jr.
Mr. and Mrs. Robert Brookings Smith
Sandra H. Stemmler
Mr. and Mrs. Monte C. Throdahl
Mrs. Jessica Ventimiglia
Mr. and Mrs. John K. Wallace, Jr.
Mr. and Mrs. John K. Wallace, Sr.
Mrs. Richard Weiss
Mr. and Mrs. Eugene F. Williams, Jr.
Mr. and Mrs. Joseph P. Wimsatt
Mr. and Mrs. Don L. Wolfsberger
Mr. Harry E. Wuertenbaecher, Jr.
Mr. and Mrs. Andrew R. Zinsmeyer
Mr. and Mrs. Louis I. Zorensky

Mr. J. Shrewsbury
Mr. Stephen P. Mullin

Mr. George Skinner
Mr. and Mrs. Clarann Budke

Mr. Raymond Smentkowski
Mr. Stephen P. Mullin

Mrs. Anne Smyser
Mrs. Irene L. Bergh

D. Samuel D. Soule
Dr. and Mrs. Michael M. Karl

Dr. Julian A. Steyermark
Anonymous
Mrs. J. Paul Biesterfeldt
Mr. and Mrs. Donald A. Branson
Ms. Nora Dunsterville
Mr. Norwood Lippold
Missouri Native Plant Society-St. Louis Chapter
Mr. and Mrs. Edward Norman
Mr. Luther J. Raechal
Mrs. Norma Silber
Mr. and Mrs. James E. Taylor
Dr. and Mrs. Henk Van der Werff

Mrs. Robert Stupp
Mr. and Mrs. Donald F. Barr
Ladue Garden Club

Mrs. Cornelia Sunnen
Mrs. Werner F. Boldt
Ms. Elizabeth Dentzer
Mr. and Mrs. Morton Estes
Friends of Pioneer Charities
Mr. and Mrs. J. P. Garbarini
Mrs. William Greenstreet
Mr. and Mrs. Frank M. Hollis
Mr. and Mrs. William G. Layhe
Mr. and Mrs. William C. Martinez
Mr. and Mrs. Leonard Sappington
Mr. and Mrs. Richard E. Savage
Mr. and Mrs. Paul O. Wright

Mr. Stuart Symington, Sr.
Mr. and Mrs. Robert Brookings Smith
Mr. Harry E. Wuertenbaecher, Jr.

Mrs. Sadano Taketa
Mr. and Mrs. George T. Abe
Toshi and Sue Doi
Mr. and Mrs. Edwin S. Izumi

Mrs. Alice Thellman
Mr. and Mrs. Paul Kuhn

Edith Thompson
Mr. and Mrs. Edward J. Crawford

Wanda Thumin
School of Business Administration-UMSL
Howard Baltz
James Breaugh
Robert Dempsey
Peter Depaulo
Dennis Dossett
Thomas Eyssell
David Gustafson
Michael Harris
William Heinbecker
Geraldine Hynes
Marius Janson
James Krueger
Peggy Lambing
Laurence Madeo
Silvia Madeo
Donald Malm
Joseph Martinich
Mary O'Brien
L. Douglas Smith
James Tushaus
Wayne Winter
George Witteried

Tillie
Mr. Michael Suchart

Mrs. Marge Tober
Mr. and Mrs. Harold Lewin

Dr. Philip G. Vierheller
Mr. and Mrs. Robert L. Blanke, Jr.
Mr. and Mrs. Tom S. Eakin, Jr.
Mr. and Mrs. Fred A. Oberheide

Mrs. Susie Walker
Mrs. Carol B. Kaplan

Dr. Ed S. Wallace
Dr. and Mrs. Leonard L. Davis, Jr.

Mr. Fred O. Weidemann
Miss Marcella M. Lauth
Mrs. Mildred A. Milster

Mr. Jeffrey Yost
Mr. and Mrs. J. Gregory Bartels, Sr.
K. G. Bechtol
Mr. and Mrs. Carl W. Burst, Jr.
Mr. and Mrs. Floyd Chapman, Jr.
CMI-Delinquency Operations Staff
Mrs. Hazel F. Edick
Adelaide Gass
Nancy Gass
Mr. and Mrs. John T. Hart
Mrs. Jane Hartrich
Mr. and Mrs. John H. Holekamp
Shughart, Thomson & Kilroy
Mr. and Mrs. George Kletzker
Capt. and Mrs. Lawrence J. Korson
Mrs. Rosemary Meacham
Mrs. Edward Mitchell
Nathalie L. Scott
Cheryl Weber and Family

Mrs. Eugene Zimmerman
Miss Martha R. Barnidge
Mrs. Blayne M. Brewer
Mr. and Mrs. Robert Forbes
Mrs. H. L. Oetter
Mr. and Mrs. Ralph N. Pipe
Dr. Verna I. Green Smith

Mr. Jay Zimmerman
Dr. and Mrs. James Bush
Mrs. Ida Steinberg

Board of Trustees

Mr. Robert E. Kresko
President

Dr. Marguerite Ross Barnett
Rev. Lawrence Biondi, S.J.
Mr. Gerald D. Blatherwick
Mr. Stephen F. Brauer
Mr. William H. T. Bush
Mr. Jules D. Campbell
Dr. William H. Danforth
Mr. Samuel B. Hayes
Mr. Robert R. Hermann
Rt. Rev. William A. Jones, Jr.
Mr. David W. Kemper
Mr. Charles F. Knight
Mr. William E. Maritz
Mr. James S. McDonnell III
The Hon. Gene McNary
Mr. Lucius B. Morse III
Mrs. Fred A. Oberheide
Mr. William R. Orthwein, Jr.
Mrs. Vernon W. Piper
Mrs. Lucianna Gladney Ross
Dr. Howard A. Schneiderman
The Hon. Vincent C. Schoemehl, Jr.
Mr. Sydney M. Shoenberg, Jr.
Mr. C. C. Johnson Spink
Mrs. Walter G. Stern
Mr. Andrew C. Taylor
Dr. Joyce M. Thomas
Mr. John K. Wallace, Jr.
Mr. O. Sage Wightman III

EMERITUS TRUSTEES
Mr. Howard F. Baer
Mr. Clarence C. Barksdale
Mr. Joseph H. Bascom
Mr. John H. Biggs
Mr. Sam'l C. Davis
Dr. Thomas S. Hall
Mr. Henry Hitchcock
Mrs. Anne L. Lehmann
Mr. Joseph F. Ruwitch
Mr. Louis S. Sachs
Mr. Daniel L. Schlafly
Mr. Warren M. Shapleigh
Mr. Robert Brookings Smith
Mr. Tom K. Smith, Jr.
Mrs. Harriet Spoehrer
Mr. Harry E. Wuertenbaecher, Jr.

MEMBERS' BOARD
Mrs. Henry W. Dubinsky
President

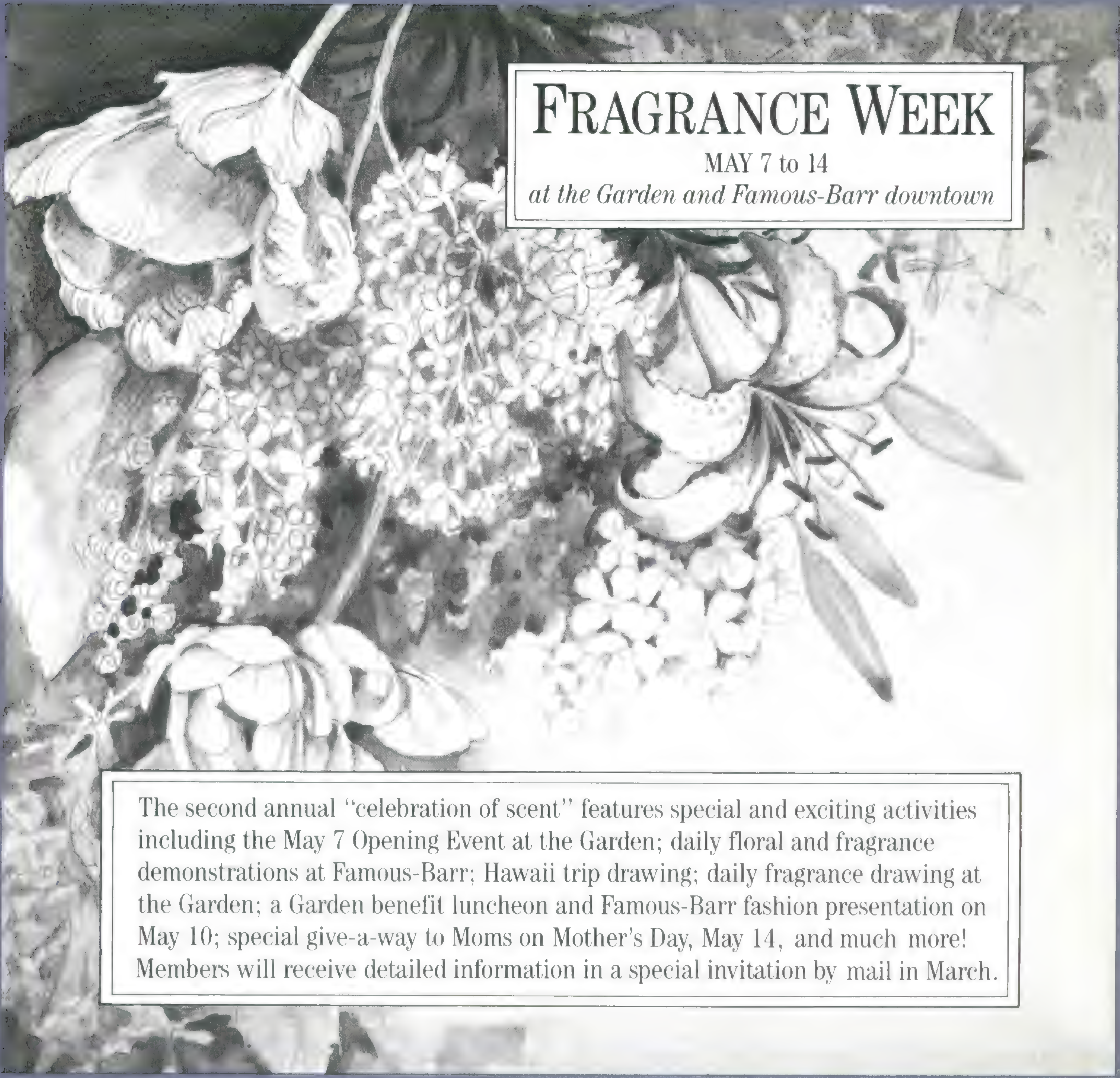
Mrs. Rudyard K. Rapp
First vice president

Mrs. Antonio I. Longrais
Second vice president

Mrs. Robert J. Senkosky
Secretary

Mr. Frederick H. Atwood III
Treasurer

DIRECTOR
Dr. Peter H. Raven



FRAGRANCE WEEK

MAY 7 to 14

at the Garden and Famous-Barr downtown

The second annual "celebration of scent" features special and exciting activities including the May 7 Opening Event at the Garden; daily floral and fragrance demonstrations at Famous-Barr; Hawaii trip drawing; daily fragrance drawing at the Garden; a Garden benefit luncheon and Famous-Barr fashion presentation on May 10; special give-a-way to Moms on Mother's Day, May 14, and much more! Members will receive detailed information in a special invitation by mail in March.

MISSOURI BOTANICAL GARDEN BULLETIN (ISSN-0026-6507)
P.O. Box 299
Saint Louis, Missouri 63166

SECOND CLASS
POSTAGE
PAID
AT ST. LOUIS, MO

CENTENNIAL
Board of Trustees
1889 1989
Missouri Botanical Garden

QK1
.M593
c.2

Missouri Botanical Garden Bulletin

MAY /
JUNE
1989

VOLUME LXXVII
NUMBER THREE

Inside This Issue

4 **Home Gardening**
An introduction to irises, and to Robert Bowden, our new director of horticulture.

6 **History of the Board of Trustees**
Part Two: 1901-1970. Despite war, the Depression and smog, the Garden continued to grow.

9 **Plants at the Garden**
Peonies are a spectacular sight in May; learn all about them.

10 **Ask the Answer Service**
Solving problems concerning trees, stumps, tomatoes and window boxes.

11 **Greensfelder Award**
Richard Pough is honored.

12 **Calendar of Events**
Extended summer hours begin, and so does summer fun.

14 **From the Membership Office**
A salute to the Membership Services Desk, Mother's Day, and our 50th anniversary.

18 **Campaign for the Garden**
A grant from the National Science Foundation.

20 **Trustee Profiles**
Meet our newest Trustees, Samuel Hayes and Andrew Taylor.

21 **Tributes**

On the cover: Irises are a springtime favorite at the Garden.
– Photo by Pat Watson

© 1989 Missouri Botanical Garden.

The BULLETIN (ISSN 0026-6507) is published bi-monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, MO 63110. Second class postage paid at St. Louis, MO. Subscription price $12.00 per year. $15.00 foreign.

The BULLETIN is sent to every Member of the Garden as one of the benefits of membership. For a contribution of as little as $40 per year, Members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and for course fees; and the opportunity to travel, domestic and abroad, with other Members. For information, please call (314) 577-5100.

Postmaster: send address changes to Susan Wooleyhan, editor, BULLETIN, P.O. Box 299, St. Louis, MO 63166.

Comment

A Busy Season

May and June have always been the Garden's busiest and most delightful months, brimming with activities, special events, lectures, and marvelous color and beauty throughout the grounds. The second Fragrance Week opens to the public on May 7 through May 14 and will be co-sponsored this year by Famous-Barr. A host of activities and events will take place at the Garden and at Famous-Barr throughout the week including a special fragrance sample gift that will be given to mothers who join us on Mother's Day.

This year the popular Rose Evening will offer a video presentation and a booklet on the growing and care of roses, and the Garden's horticulture staff will be available throughout the evening to answer questions.

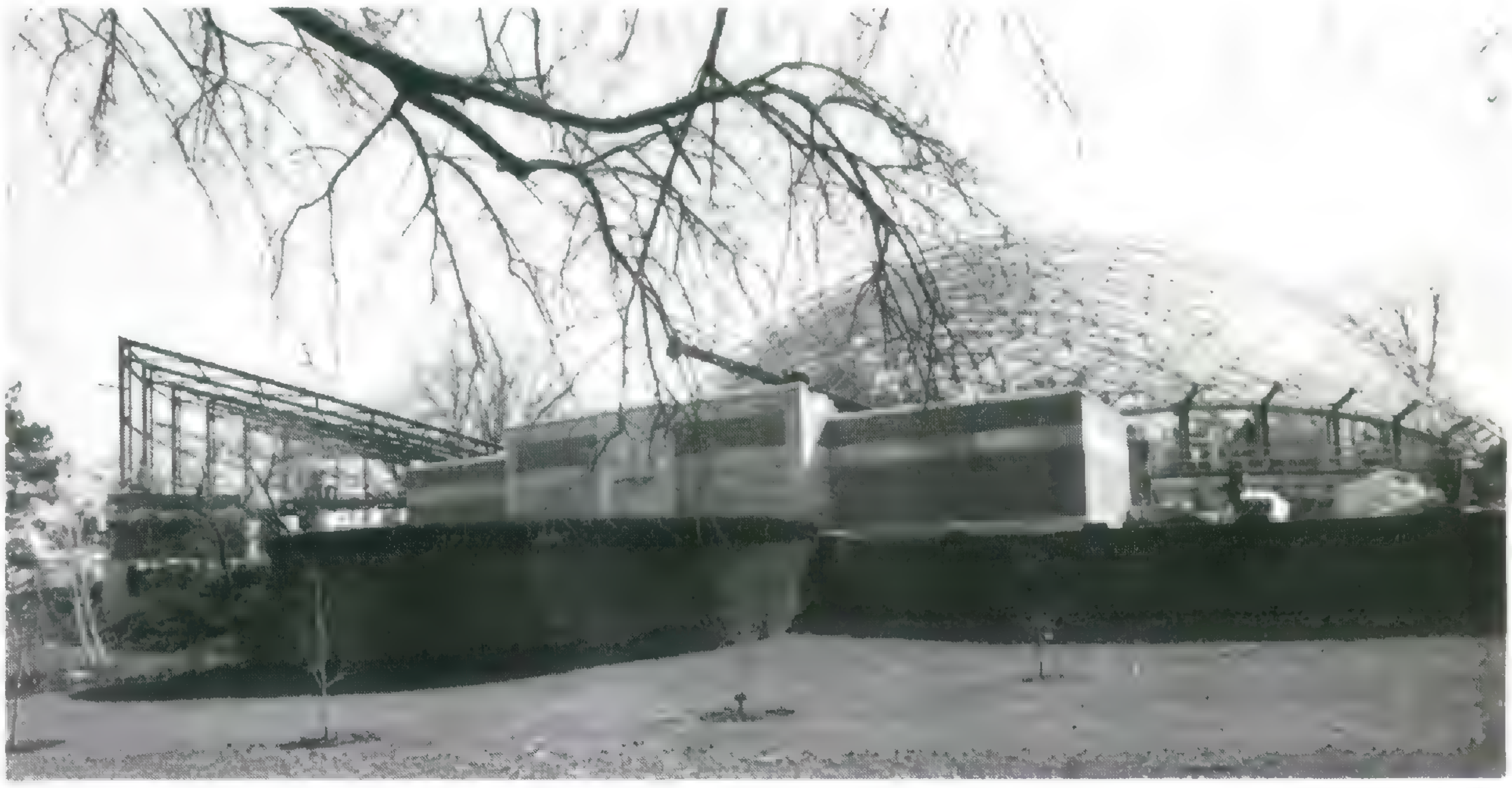
The Garden remains committed to increased educational offerings and this summer is a perfect time to enroll in Garden lectures and education courses. The Henry Shaw Academy offers a summer science camp for children with special interests in natural history, nature study, ecology and outdoor explorations. Summer opportunities for adults concentrate on the serious problems of tropical deforestation, with lectures on the people and the products of the tropics, and the consequences of deforestation.

During the Centennial Year celebrating the 100th anniversary of the Board of Trustees and 50 years of membership, special recognition should be given to Ellen Dubinsky, the Members' Board president, for her leadership, and to Nora Stern and Andrew Taylor, Trustees who are serving as co-chairmen of the Centennial Celebration Benefit scheduled for September 9. Each of you will be receiving an invitation to join us that evening.

The Campaign for the Garden is continuing at a fast pace. We recently received notification from the National Science Foundation of an award to assist with the new educational exhibits in the Climatron. With less than one year remaining in this critical fund-raising drive, we are pleased with the response and hope to exceed our goal by the conclusion of this year.

As always, the Garden is able to achieve such a high level of success in its programs and services because of the thousands of Members, individuals, corporations and foundations who so willingly lend their support to our efforts. Our thanks to all of you.

Peter H. Raven



CONSTRUCTION PROGRESSES: A view from the west side of the Climatron shows the steel framework of the new Temperate House (left) and the facade of the new Interpretive Center taking shape.

Youth Education
at the Garden

Where can a youngster learn about Japanese culture, photosynthesis, or the reasons for seasons? At the Missouri Botanical Garden, of course.

Education has been a fundamental mission of the Garden since its founding in 1859. Henry Shaw believed that, in addition to their benefits as sources of aesthetic and recreational pleasure, public gardens should serve as community resources for instruction in horticulture, botany, and other topics reflecting the importance of plants in people's lives.

More than 106,000 students were served in 1988 education programs at the Garden, and more than 75 percent of these students were ages 18 and under. The Garden offers St. Louis-area schoolchildren a wide variety of programs and classes, from day field trips and tours to individualized instruction for science fair projects. This includes 21 different classes and tours conducted by volunteers and staff, covering such topics as tropical rain forests, plant pollination, and environmental conservation.

More than 106,000 students were served in 1988.

Classes are free to students living in the Metropolitan Zoological Park and Museum District of the City of St. Louis and St. Louis County, the property tax district established to provide support for key St. Louis arts and cultural institutions.

The Garden provides special services to local school districts, as part of the areawide voluntary desegregation program, through contracts with the St. Louis Science Magnet Schools and the St. Louis Schools Partnership Program. Students from the Stix and Mason Science Magnet Schools receive part of their education at the Garden, studying plants and climates in our greenhouses, learning about photosynthesis by working with living plant specimens, and conducting biological field studies at the Shaw Arboretum at Gray Summit. In the Partnership Program, classes from city and county schools are matched at the Garden to learn cooperatively about such topics as world hunger, tropical deforestation, and energy issues.

For extremely motivated science students ages 7 to 14, the Henry Shaw Academy offers accelerated classes taught on weekends and evenings during the school year and a full summer science camp. The Academy's Explorers group, for older students to age 18, provides a wealth of field experience opportunities, including an annual field trip to Jamaica.

Other Garden education programs dramatically expand the numbers of students served by working with those who educate. Area science teachers are trained at symposia, workshops, and other programs offered by the Garden. Suitcase Science is a series of curricula-and-materials packages in biology, ecology, and botanical subjects developed for loan to the classroom. The ECO-ACT program, an award-winning environmental leadership program, trains youth to teach science concepts to their younger peers in a year-long program of classes, workshops, and field [illegible] econdary and [illegible] vide quality science education for the students of St. Louis. All classes are coordinated with Missouri State Core Competencies standards and thus supplement classroom learning.

—Stephanie Finke, Coordinator of Youth Programs

TOP: A 4th grade City Magnet School science class, held at the Ridgway Center.

CENTER: Observation and description are essential to science.

BELOW: Demonstration is an important part of all classes.

H·O·M·E GARDENING

This issue of the Bulletin *introduces Robert E. Bowden, who recently joined the staff of the Garden as Director of Horticulture.*

IRISES

by Robert E. Bowden

Spring is a great time to think of irises for the garden setting. Several species and thousands of cultivars of irises are available for the novice and the expert alike. Most are easy to grow, and make a spectacular display.

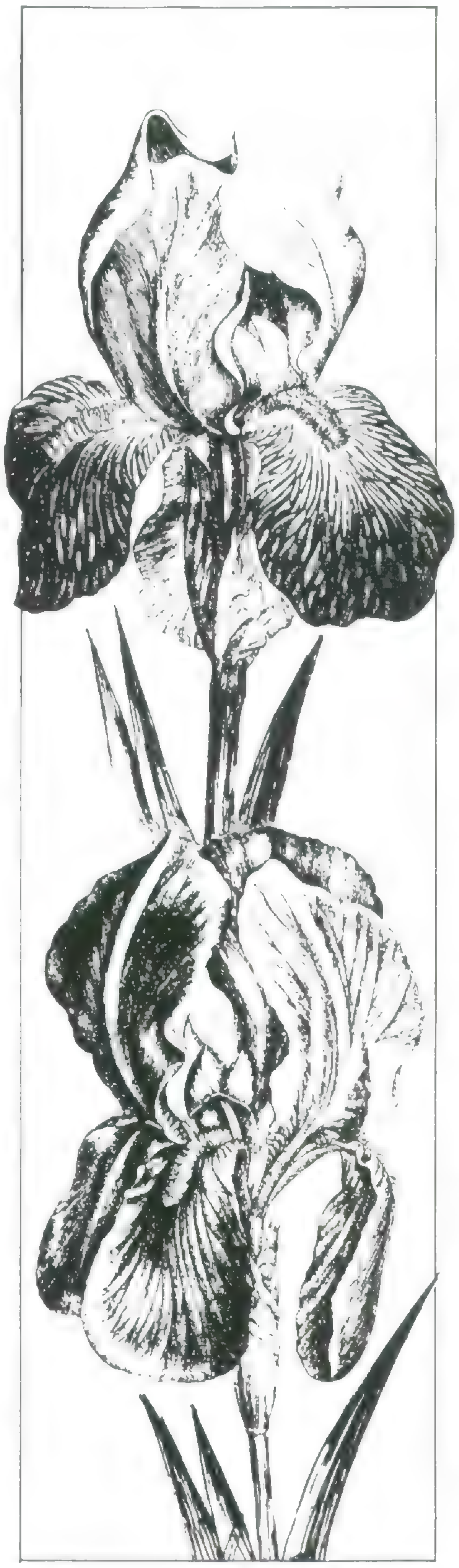
POPULAR SELECTIONS

Certainly the most common selection is the **bearded** iris *(Iris ×germanica)*. Ease of maintenance, resistance to pests and tolerance of various soil types make this hybrid and its cultivars very popular. The blooms consist in part of three large upright petal-like standards and corresponding drooping petal-like falls.

The bearded iris appears in myriad colors ranging from gold to lemon yellow to hues of pink, purple and blue on stems ranging from 18 to 36 inches tall. A few outstanding cultivars include 'Beverly Sills' (deeply ruffled, coral pink), 'Dream Affair' (large ruffled, blooms of soft creamy yellow) and 'Sterling Silver' (a blue violet bicolor with petal edges that develop a silvery cast a few hours after opening).

In early June, **Siberian irises** (*Iris sibirica* and related species) come into flower. They are as easy to grow as the bearded iris. Often referred to as one of several "beardless irises," Siberian iris flowers are born on tall slender stems nearly 30 inches in height. Siberian iris blooms are somewhat flat in shape and display a number of shades of white, blue and purple. Given enough moisture throughout the growing season, Siberian irises will become a garden favorite. A few outstanding cultivars include 'Caesar's Brother' (narrow upright standards of violet with violet falls), 'Fairy Dawn' (a delicate light pink), and 'Windwood Spring' (a ruffled light blue with light yellow stripes, or "signals," on the falls).

Japanese iris (*Iris ensata*) is similar to *Iris sibirica*, with tall slender stems 30 to 40 inches in height, but *Iris ensata* is generally showier. The flowers can be as large as dinner plates and range in color from white and pink to lavender and purple. Japanese iris requires good-quality soil high in organic matter, with a pH of 5.2 to 6.5. It requires moist soil during the summer months. Suggested cultivars include 'Burgot' (low-growing ruffled double white blooms with a green throat), 'Dace' (full, ruffled double white blooms), and 'Strut and Flourish' (dark red-violet centers blend to light blue-violet petal edges; dark blue veins radiate across both). These cultivars and a number of other *Iris ensata* cultivars can be seen in an entirely new display that was planted last September at the Yatsuhashi bridge in the Japanese Garden. They will bloom in mid-June.



Most irises are easy to grow, and make a spectacular display.

Louisiana iris stems from four irises growing wild in the bayous of Louisiana: *I. fulva*, *I. brevicaulis*, *I. giganticaerulea*, and *I. ×nelsonii*, a hybrid involving the other three species. Louisiana iris is also known as swamp iris and blooms in middle to late May in St. Louis. When these spectacular irises were introduced to the general trade, there was speculation that they would be less hardy than the species discussed above. Time has proven the disbelievers wrong, and the Louisiana iris is becoming increasingly popular. Interesting cultivars include 'Dizzy Lizzy' (a bicolor of cream and maroon), 'Bit of Blue' (a prolific bright blue) and 'Acadian' (dark brick red).

Iris pseudacorus, like *Iris sibirica*, is quite tolerant of moist soil and will grow very well in shallow water and shorelands. It is the only water garden iris with yellow blooms. The color ranges from light lemon yellow to golden yellow, with flowers three to four inches wide. Some cultivars reach heights of over six feet ('Gigantea'), though most are only three to four feet tall. The rhizomes, thought to be poisonous if consumed by humans, are very large and resemble sweet potatoes. *Iris pseudacorus* flowers freely and can become somewhat invasive. To reduce this problem, remove the prolific seed set after blooming ends.

PLANTING

Most irises are easy to grow. The soil usually should be slightly acid (pH 5.5). Irises generally are planted (or divided and replanted) in middle to late August. Plant the rhizomes deep enough to cover, and firm up the soil, pulling it up around the rhizome to create a small hill. This will keep rain water from standing around the rhizomes.

The earlier the rhizomes are planted the better they will be rooted before the onset of winter. A good mulch spread over the iris beds after the ground has frozen will prevent heaving in clay-laden soil. Remove the mulch in mid-March.

PESTS AND DISEASE CONTROL

Irises are generally pest-free. Occasionally *Iris ×germanica* is tormented by the iris borer, which causes yellow, mushy leaves by eating its way up and down the leaves. Various systemic insecticides control the borers on bearded iris if applied every six weeks, April through September. A disease called soft rot, or bacterial rot, is caused by too much water. The disease usually starts at the base of the leaf and travels up the leaf about an inch. The entire leaf tuft falls over. The rot continues through the rhizome until the entire plant is destroyed. The first sign of it is a foul odor. If your irises become infected with soft rot, dig the rhizomes any time after the bloom has finished. Cut the rhizomes back to healthy white root growth with a utility knife. Dip the cleaned root in a ten percent chlorine solution or dip into household cleanser powder containing chlorine and allow to air dry. Plant in prepared beds.

For additional information about irises and their culture consider *The World of Irises* edited by Bee Warburton, published by The American Iris Society. To become a member of The American Iris Society and receive valuable information concerning the genus *Iris* write: The American Iris Society, c/o Carol Ramsey, 6518 Beachy Avenue, Wichita, Kansas 67206.

FOTHERGILLA

In the spring landscape, many gardens feature forsythias, azaleas and a range of flowering bulbs. If you would like to try something unusual, consider *Fothergilla monticola*. Flowering a bit later than forsythia, *Fothergilla* presents a showy display of two-inch white spikes unlike anything else in the garden. *Fothergilla* is generally a dense shrub; this species reaches a maximum height of only six feet. One of its finest attributes, the fine fall color of soft yellow-orange, is often overlooked. Native from North Carolina to Alabama, *Fothergilla monticola* boasts the additional benefit of being virtually pest-free and tolerant of drought. You can see a fine specimen in the Jenkins Daylily Garden.

A view of the Alice Hahn Goodman Iris Garden.

P·R·O·F·I·L·E

ROBERT E. BOWDEN

New Director of Horticulture

Robert Bowden, the Garden's new director of horticulture, came to the Garden in January from Old Westbury Gardens on Long Island, where he was director of horticulture and operations. He has a distinguished background, including a bachelor of science degree in horticulture and landscape design from Florida A & M University and a master's degree in public administration from the University of Michigan.

Enthusiasm and direct involvement are hallmarks of Bowden's approach. "The Garden is a magnificent showplace," he said recently, "and it's our goal to continue that standard while we expand our programs and facilities. The re-opening of the Climatron next year, and the development of the Center for Home Gardening, are exciting challenges. The new greenhouse complex is making it possible to do more ambitious displays than ever.

"Gardening has become the number-one hobby in America," he continued, "and public concern with environmental issues has never been greater. It is our mission to encourage those interests, to educate our visitors. We want people to enjoy the beauty of the Garden, and also to take away a greater understanding of the role of plants in our lives."

Robert Bowden, his wife Gailann and their three children are also enthusiastic about life here in St. Louis. "The Garden and its Members are deeply committed to enhancing life in St. Louis, and I am delighted to be a part of that effort," he said recently. "I'm looking forward to meeting all of the Members. Their commitment of time and resources to the Garden has made it what it is today."

Visitors at the Garden, c. 1900.

Preparations for the 1921 Chrysanthemum Show in the Floral Display House.

A banquet for the annual convention of the National Association of Gardeners, held in the Floral Display House, September 15, 1920.

CENTENNIAL
Board of Trustees
1889 1989
Missouri Botanical Garden

PART TWO/1901-1970

GROWING AND BUILDING

BY
Joseph
M.
Schuster

THE FIRST DECADE of the new century was a sort of changing of the guard at the Missouri Botanical Garden as, one by one, the men Henry Shaw had hand-picked to carry on his Garden died. By 1910, only one remained—William H. H. Pettus, who would serve another dozen years; his 33-year tenure would be surpassed by only George Hitchcock's 44 years, 1903-47.

But just as Henry Shaw chose well when he named his Trustees, so did the men who came after him. The decade from 1910 to 1920 was one of remarkable growth. Arguably, no other time in Garden history, until the period of the last 20 years, would see as much development as did that decade, during which the Trustees built four display greenhouses, which would be among the most significant features in the Garden for many years. In 1912 the Palm House went up; in 1913, the Desert and Mediterranean houses opened; two years later, the Floral Display House opened.

The construction of the greenhouses brought an explosion in the number of visitors to the Garden. Between 1911 and 1913, attendance more than doubled, from just more than 91,000 to almost 218,000. And it continued to grow. During the three-hour grand opening celebration for the Floral Display House on October 31, 1915, an incredible 6,000 people walked through it to view the annual chrysanthemum show. During the next month, more than 61,000 people entered the Garden—an attendance equal to that of eight months just four years earlier.

There were other factors behind the Garden's new popularity. One was that, in 1912, the Trustees elected to open the Garden every Sunday from May through October. Previously, it had been open only two Sundays a year.

Another reason was that, the same year, the Trustees hired a new director, Dr. George T. Moore, who would remain in the position until 1953, and would be the only Garden director to serve simultaneously as a Trustee (1929-54). William Trelease, who had been hired just a few days after the Trustees organized themselves following Shaw's death, had done a good job seeing the Garden through the growing pains of those first 20 years. But the Trustees felt he had concentrated too much on the scientific programs and not enough on the Garden's public horticultural displays. Moore, they felt, would give adequate attention to both.

The new director showed immediately he intended to

A view north from the upper story of Tower Grove House in the 1920s shows the smog that blanketed the city.

Construction of greenhouses on the Garden's property at Gray Summit, c. 1925. The orchid collection was eventually moved there to protect it from air pollution in the city.

follow the wishes of the Trustees. He scheduled monthly flower shows for the public and began submitting monthly reports to the Trustees so that they could stay more closely in touch with the Garden they governed. Moore was not, however, lacking scientific credentials. He had joined the Garden, and the prestigious Shaw School of Botany at Washington University, three years earlier as a professor of plant physiology and applied botany and was a recognized expert in algae. During the 40 years he was director, the Garden would make great strides in its scientific work, including the beginning of its monumental task of cataloging the flora of Panama and the publication of the *Annals*, one of the leading botany journals in the world.

But even in the midst of success there were problems. One was the first World War, which caused the Trustees to close its school for gardening and cease its floral displays because of wartime economies.

Another of the problems was the smog that had blanketed St. Louis for years, threatening the Garden's valuable collection of plants, including its orchid collection, one of the finest in the world at the time.

In 1923, the Trustees received court permission to sell off some of the land Shaw had left them adjacent to the Garden so that they could purchase land outside the city, where the air was cleaner and more conducive to fragile plant life. After two years of looking, they found 1,300 acres on the Meramec River near Gray Summit, Missouri.

Once they found it, they were quick to act. Long-time Garden horticulturist George Pring remembered accompanying Moore and a quorum of the Trustees to the site. The group of men surveyed the site, walked through a farmhouse on the property, came back outside and stood in a small huddle. The Trustees asked Moore for his recommendation; he deferred to Pring; Pring said it was exactly the property they needed, and the Trustees, standing near the banks of the Meramec, voted, on the spot, to buy it.

The Trustees planned to move all of the horticultural displays to Gray Summit, leaving only the library, herbarium and historical buildings in St. Louis. But it wasn't something that could be accomplished overnight; greenhouses had to be constructed. It took 18 months before even the orchid collection, the most vulnerable of the Garden's holdings, could be moved. As it turned out, however, the Trustees did not have to move the Garden to Gray Summit. In the 1930s,

From the Globe-Democrat *Collection of the St. Louis Mercantile Library Association.*

June, 1954: John S. Lehmann (left front), president of the Board, receives a $10,000 check from Arthur B. Baer, president of Stix, Baer & Fuller (right), for restoration of Tower Grove House. Looking on are Dr. Edgar Anderson, director of the Garden, and John A. Bryan, who directed the restoration work.

CENTENNIAL *continued*

the city passed a smoke abatement ordinance, and the air gradually cleared. The orchids, however, would not come back to the Garden until the 1950s.

The subsequent quarter century was not an easy one for the Trustees. There were accomplishments, to be sure. In 1939, the Friends of the Garden was formed to help the Trustees raise money for the development of Shaw Arboretum, as the Gray Summit property has become known. (The organization, now the membership at the Missouri Botanical Garden, celebrates it 50th anniversary this year.) In 1943 work began on the Flora of Panama project. The herbarium continued to grow, reaching 1.5 million specimens in 1949.

However, in 1929 came the Depression, and the Garden's income, at that time derived almost exclusively from endowment, dropped precipitously. From 1928 to 1934 it fell from $215,000 to $148,000—a decline of 30 percent in just six years. By 1938, the Trustees were forced to reduce the Garden staff, but even with the tightened purse strings, there remained a scant $8,000 to purchase seeds and plant material, maintain the scientific facilities, and publish the *Annals* that year. Buildings, greenhouses, and the property in general, deteriorated. Attendance fell, from 468,000 in 1928 to 334,000 by 1940. During the 1940s, with World War II making further economies necessary, things continued to decline. By 1951, attendance was down to 199,000.

It was at this point, when the future of the Garden looked its most bleak, that John S. Lehmann came forward. An attorney and head of Petrolite Company, Lehmann had joined the Board in 1941. He was elected president in 1953 and, with the retirement of Moore the same year, also took on duties as acting director, for no pay. Lehmann was a logical choice for the job; not only was he a successful businessman, he was also "an amateur horticulturist of recognized skill, especially in the growing of dwarf fruit trees and roses," as the *St. Louis Globe-Democrat* reported in announcing his acceptance of the position. He also had a deep love for the Garden; his influence—and that of his wife, Anne—would remain one of the strongest at the Garden long after he would step down as president in 1958. Under his leadership, the Trustees began the long process of turning the Garden around. Indeed, the seeds of the tremendous development of the last 20 years were sown in that period.

While Lehmann and the Trustees didn't work miracles—the financial problems did not evaporate—they did succeed in setting the Garden on a course that would enable it once again to become the place Shaw envisioned it would be. As an appropriate symbol of that, they opened Tower Grove House, Shaw's country home, to the public.

Lehmann served as acting director until 1954 when the Trustees found a brilliant plant geneticist named Edgar Anderson, who had received a prestigious Guggenheim Fellowship for his work. Anderson would serve only a little more than three years—resigning in 1957, but remaining with the Garden as a botanist until his death in 1969—but it was during that time that the Garden's annual Systematics Symposium began. Today it is one of the most significant botanical conferences in the world. During those years, the Garden also started to make inroads toward solving some of its financial problems. Many of the Trustees, including Lehmann, gave generous donations and convinced some of their friends and associates to do the same. The National Science Foundation awarded the first of what would be many grants to the Garden for its scientific work. The membership increased tremendously, from around 800 in 1954 to more than 2,500 by 1958.

That year also saw the beginning of a project that would bring the Garden more international recognition that anything else to that point in its history.

As a successor to Anderson, the Trustees hired Frits Went, a Dutch-born scientist, "an innovative botanist," Henry Hitchcock later remembered. (Hitchcock, who became president of the Board in 1965, is the grandson and namesake of the original Trustee.) One of the first projects Went and the Trustees agreed to tackle was the replacement of the greenhouses. No new display houses had been built since the Floral Display Hall in 1915; both Went and the Trustees felt that repairing the ancient structures would not be cost effective. Went proposed they try a geodesic dome

continued on page 18

Plants at the Garden

Peonies

By Jon Pickering

Few plants can boast the varied history of the peonies we see in our gardens today. It is not difficult to appreciate the fascination man has had for peonies through the ages.

The name "peony" comes from a Greek legend in which a student of medicine, Paeon, healed a wound the god Pluto received while in battle. Paeon did this with the help of a healing plant shown to him by the goddess Leto. However, in doing so he made Aesculapius, the god of medicine, insanely jealous, and he threatened to kill Paeon. Pluto, who was grateful for his recovery, saved Paeon by changing him into the healing plant that today bears the name peony (the genus name is *Paeonia*).

Peonies are the exclusive members of the family Paeoniaceae. They are native to Asia, North Africa, Europe, and the western United States (where there is one species, *Paeonia brownii*). There are some 30 species of peony in total, 26 of which are herbaceous peonies, and the remaining 4 are tree peonies. Tree peonies are not really trees; they are hardy, partly woody plants that don't die completely back in the winter. Their leaves are large, thin, and pale green. Herbaceous peonies, on the other hand, are, as the name suggests, lower-growing herbaceous plants with smaller, thicker, darker green leaves. They secrete a sugary nectar from the outside of the flower buds, unlike tree peonies. A close look at a bud may reveal nectaries and ants visiting them. The nectar lies behind the Greek name for the peony—"glucuside" from the Greek "to have sugar qualities."

Of the herbaceous peonies, two species stand out as being significant historically and for breeding. *Paeonia lactiflora* (also known as *Paeonia albiflora*) is best known in the production of new herbaceous peony cultivars. Sometimes called the "Chinese Peony," it was originally a white-flowered plant native to Siberia and China, and was first introduced into the West in the mid-17th century. However, it wasn't until about 1850, when an improved variant was shipped to Europe from the Orient, that breeding began. This, with the use of other species to cross with it, made *Paeonia lactiflora* the head of a long line of cultivars and hybrids we can see today.

If *Paeonia lactiflora* was the most highly bred peony, then *Paeonia officinalis* was the most documented. Native to Europe, the wild stock bears scarlet flowers. It is the peony described in many historical records in Europe and was used for breeding, being crossed, for example, with *Paeonia lactiflora*.

Of the tree peonies, the best known are derived from the species *Paeonia suffruticosa*. Native to China, the wild representatives of this species had large white flowers with purple eyes on the petals. It was popular in China long before records were begun, and the Chinese produced a range of large, drooping, double-flowered cultivars. Around the 11th century, monks transported *Paeonia suffruticosa* to Japan where a different line was developed. These were smaller, semidouble-flowered cultivars with a more erect habit. Breeding in the West began around 1800, but it wasn't until the turn of the 20th century, when three new tree peony species were discovered, that esteem and diversity for tree peonies advanced significantly.

Tree peonies appear to be especially significant in the history and culture of the Orient, although herbaceous peonies were present. In China and Japan, peonies were very much a nobleman's privilege and commanded high prices. It was not unusual for a peony to be given as part of a dowry payment or as a gift at times of parting. They were considered very symbolic and thus featured greatly in artwork. In China, peonies symbolized springtime. In Japan, the peony was paired with peacocks or phoenixes. Such combinations in Japanese art are frequently found, such as willow trees with swallows and storks with pines.

Meanwhile in Europe, by contrast, the herbaceous peonies were more significant historically and in modern breeding programs. The first non-mythological mention of peonies is by Pliny the Elder (A.D. 23-79) who prescribed an infusion of peonies to dissolve bladder and kidney stones. Such use of the plant in medicine probably led to the Latin name for the European peony, *Paeonia officinalis* (*officinalis* = "medicinal" in Latin).

Even Shakespeare, in the mid-17th century, mentioned peonies in his play *The Tempest*, but by this time they had made the transition from being simply a useful herb to being a plant of aesthetic value. People had begun to appreciate the beauty of the peony, something the Chinese and Japanese had realized centuries ago, and something we are still doing today.

The author, Jon Pickering, is a horticulture student at Reading University in Reading, England, and is spending a year as an intern in horticulture at the Missouri Botanical Garden. Among his projects has been a study of peonies, and he has generously prepared this article for the Bulletin.

P. 'Tom Eckhardt'

Ask the Answer Service

Growing Season Is Here

Do you have a plant question? Call the Horticultural Answer Service, Monday through Saturday, 9 a.m. to noon, at 577-5143.

Q. ***About 15 years ago a little American Holly Ilex opaca tree sprouted under our kitchen window. I trained it as an espalier. It is now 3 feet tall, 8 feet wide and 15 inches deep. Every fall it produces a nice crop of red berries. However, some of the leaves develop large brown spots. Is that part of the plant's winter cycle or is it an infection?***

A. I applaud your creative touch! Most gardeners would have weeded out that little sprout without a second thought. Instead you turned it into a showpiece and no doubt had great fun doing so.

The problem you describe sounds like a leaf spot fungus. Remove the infected leaves and spray your holly with a copper-based fungicide in summer and again in early fall. You can reduce the occurrence of leaf spot disease with good cultural practices. Have your soil tested, as lime leaching from your foundation wall could be making it too alkaline. American Hollies prefer a somewhat acid soil with a pH between 5.0 and 6.0. Work some well-rotted leafmold into the soil each spring, maintain a year-round mulch, and keep your plant well-watered during dry spells.

Q. ***We had to cut down a 20-year-old willow and a 10-year-old maple because their roots were blocking our sewer. How can I destroy the stumps to keep them from sprouting again? I've heard of a chemical that eliminates tree stumps in about three to six months.***

A. I think you are confusing two different chemicals: brush killers and stump removers. Brush killers are non-selective herbicides that can be used to prevent regrowth from the stumps of trees that are difficult to kill, such as maples and willows. The undiluted chemical is painted onto the entire freshly cut stump, including the trunk and exposed roots.

Stump removers are used to decompose the wood of dead stumps. This process may take a year or more. After decomposition, the stump is set on fire; it will smolder slowly until it is completely consumed. Be sure to follow all the manufacturer's directions when using either of these products.

Q. ***An area along the west side of my house is shady and invaded by roots from nearby trees. Are there any small evergreens or shrubs that will grow in these conditions?***

A. Few conifers will tolerate much shade, but there are some low-growing types you might try: Dwarf Japanese Yew (*Taxus cuspidata* 'Nana'), Globe Arborvitae (*Thuja occidentalis* 'Globosa'), and Siberian Carpet Cypress (*Microbiota decussata*). If the site is protected from prevailing winds, consider Canadian Hemlock (*Tsuga canadensis*). Several dwarf cultivars are available, but the larger plants can be grown and pruned to restrict their size. All of these will tolerate dappled shade and some competition from nearby roots if enough moisture is available.

Some deciduous shrubs you might try are Arrowwood Viburnum (*Viburnum dentatum*), Shrub Honeysuckle (selections of *Lonicera*), Japanese Kerria (*Kerria japonica*), Spicebush (*Lindera benzoin*), Dwarf Fothergilla (*Fothergilla gardenii*) and Summersweet (*Clethra alnifolia*).

Q. ***Last year some of my tomato plants never grew tall and produced no fruit. Their leaves stayed green but were deformed and "stringy." The problem didn't affect all of my plants, only a few here and there. What is causing this and how can I prevent it?***

A. The problem sounds like Cucumber Mosaic Virus (CMV). Tomatoes infected with this disease are often stunted and may fail to bear fruit. The leaves' "stringy" appearance, called the "shoestring" effect, is the result of a severe infection. The CMV virus is spread to tomatoes and other garden plants by aphids, and controlling them is a vital step in preventing the disease. At the first sign of symptoms, infected plants must be removed and destroyed. Remove all weeds growing near your vegetable garden, as they may harbor both the virus and the disease-carrying aphids. Such common weeds as plantain, nightshade, milkweed, burdock, spurge, pokeweed, bittersweet and even cultivated catnip may be infected with CMV and can contaminate your vegetable patch.

Q. ***We recently moved into a house with several window box planters. Can I use the soil that's in them or should I replace it?***

A. Window boxes should be emptied each year and replanted with a fresh soil mix. Avoid using only garden soil, as it will pack down and drain poorly. Use one part rich garden soil along with equal parts compost and sharp sand. Either traction sand, vermiculite, perlite or turface may be substituted for the sharp sand to insure a porous mix.

Before filling the window box, be certain all the drainage holes are clear. To prevent your soil mix from washing through, line the bottom with a piece of window screen or a couple of coffee filters.

TIMELY TIPS:

- Feed roses after the first show of bloom is past. Use a balanced fertilizer such as 12-12-12.
- Prune climbing roses back after their blossoms fade.
- Any spring-flowering trees and shrubs in need of pruning may be trimmed now.
- Fertilize azaleas and rhododendrons after they finish blooming. Use a formula made for acid-loving plants.
- Set out vegetables that need warmth, such as tomatoes, peppers and eggplants, once the night temperatures remain above 50° F.
- Apply mulches as the soil is warming. Water first if soil is dry.
- Softwood cuttings can be taken after the first flush of new growth.
- Spray roses with a fungicide that gives black spot control.
- Plant cucumbers and squash after the soil has thoroughly warmed.
- Start brussel sprouts in May for setting into the garden in late June. This will provide for a fall harvest.
- Start pumpkins about mid-June to have Jack-o-Lanterns by Halloween.
- Renovate strawberries after harvest is complete. Mow the rows, thin out excess plants, remove weeds and apply mulches to prevent weeds' return.

—Chip Tynan, The Answer Service

Greensfelder Medal to Richard Pough

Richard H. Pough, the man who gave the Nature Conservancy its name, received the 1989 Albert P. and Blanche Y. Greensfelder Medal on March 16, 1989, at a banquet in his honor at the Ridgway Center.

Pough is perhaps best known as the author of the Audubon Bird Guide, but he was the impetus behind the very successful preservation group, The Nature Conservancy. This organization has purchased millions of acres of virgin land in this country and others, often deeding the land over for management by other private and public conservation groups. The Conservancy has saved 35,000 acres of land in Missouri alone.

Prior to Pough's term as the Conservancy's first president, the organization was known as the Ecologist's Union. Under Pough's leadership the group decided they would do just one thing and do it well. They decided to save land. In addition to the vast areas they have purchased, The Nature Conservancy today lends money from a revolving fund to groups trying to preserve land. The group also has been instrumental in the innovative debt-swap program, where countries set aside land for conservation, in exchange for loan retirements.

Garden Trustee O. Sage Wightman III (left) presented the medal to Richard Pough (right).

Pough, who was born in 1904, studied ornithology and mammalogy at Harvard, but holds a degree in engineering from the Massachusetts Institute of Technology. He says that his background in chemical engineering has allowed him to "recognize the importance of the genetic material inherent in a plant ecosystem".

The Greensfelder Medal, which was presented to Pough for his long history of land preservation and animal protection, was first established in 1980, as a memorial to Albert P. and Blanche Y. Greensfelder. It is awarded to those exceptional individuals who have made substantial contributions to conservation and urban improvement. Some former recipients of the medal include Roger Tory Peterson, Roberto Burle Marx and Leonard Hall.

Behind the Scenes

Manager Named for Center for Home Gardening

Dr. Steven Cline

The Garden is a step closer to its proposed Center for Home Gardening with the appointment of Dr. Steven D. Cline as manager for the center. Cline comes to the Garden from St. Louis University where he was engaged in postdoctoral research.

Cline's academic background includes a masters and doctorate in plant pathology from the University of Illinois. His early training was in botany, and he is a certified teacher in secondary education. Peter H. Raven, director of the Garden, said, "Dr. Cline has exceptional credentials, but it is his enthusiasm for creating a 'hands-on' garden that makes him the ideal candidate."

Cline's speciality is ornamental plant pathology. "This field of study involves the recognition, diagnosis and treatment of infectious and non-infectious diseases of plants," Cline said. However, the diagnosis of plant disorders starts with understanding the cultivation and characteristics of healthy plants."

Until the spring of 1990, when construction will begin on the Center's Pavilion, Cline will be reviewing the physical plans for the Center for Home Gardening, designing programs and developing cooperative links with the community. Cline said, "The entire purpose of this project is to provide Garden Members and visitors with horticultural information and training in gardening techniques."

"It is an exceptional opportunity for the Garden to provide the community with practical, 'hands-on' learning experiences," Cline said. "I am excited to be a part of the program."

Plans for the Center for Home Gardening include the Pavilion, a 10,000-square-foot building, and more than 20 demonstration gardens. It will be located in the area between the Climatron and the Japanese Garden.

Missouri Botanical Garden

CALENDAR OF EVENTS

May-June 1989

MAY & JUNE WALKING TOURS

Join us for tours every Tuesday, Saturday and Sunday afternoon. Tuesday and Saturday tours leave at 1 p.m.; Sunday tours leave at 2 p.m. Meet at the Ridgway Center ticket counter. Enjoy springtime with knowledgeable Garden Guides. Explore the horticulture, history, art and architecture of the Garden, rain or shine. Free with regular Garden admission.

MAY

1 MONDAY

Plant Clinic

9 a.m. to noon, Ridgway Center. Master Gardeners will be on hand to assist you with on-the-spot identification of your plants and their insect, disease and cultural problems. Free with regular Garden admission.

1-7 MON.-SUN

Plantasia

9 a.m. to 5 p.m. daily, Ridgway Center. Exhibit continues. Photographs by Robert Shapiro. Free with regular Garden admission.

2 TUESDAY

Book Autographing Session

3 to 5 p.m., Garden Gate Shop. Join Dr. Peter H. Raven and Dr. George Johnson in the beautiful new book department, as they sign copies of the new edition of their book *Biology*. Free with regular Garden admission.

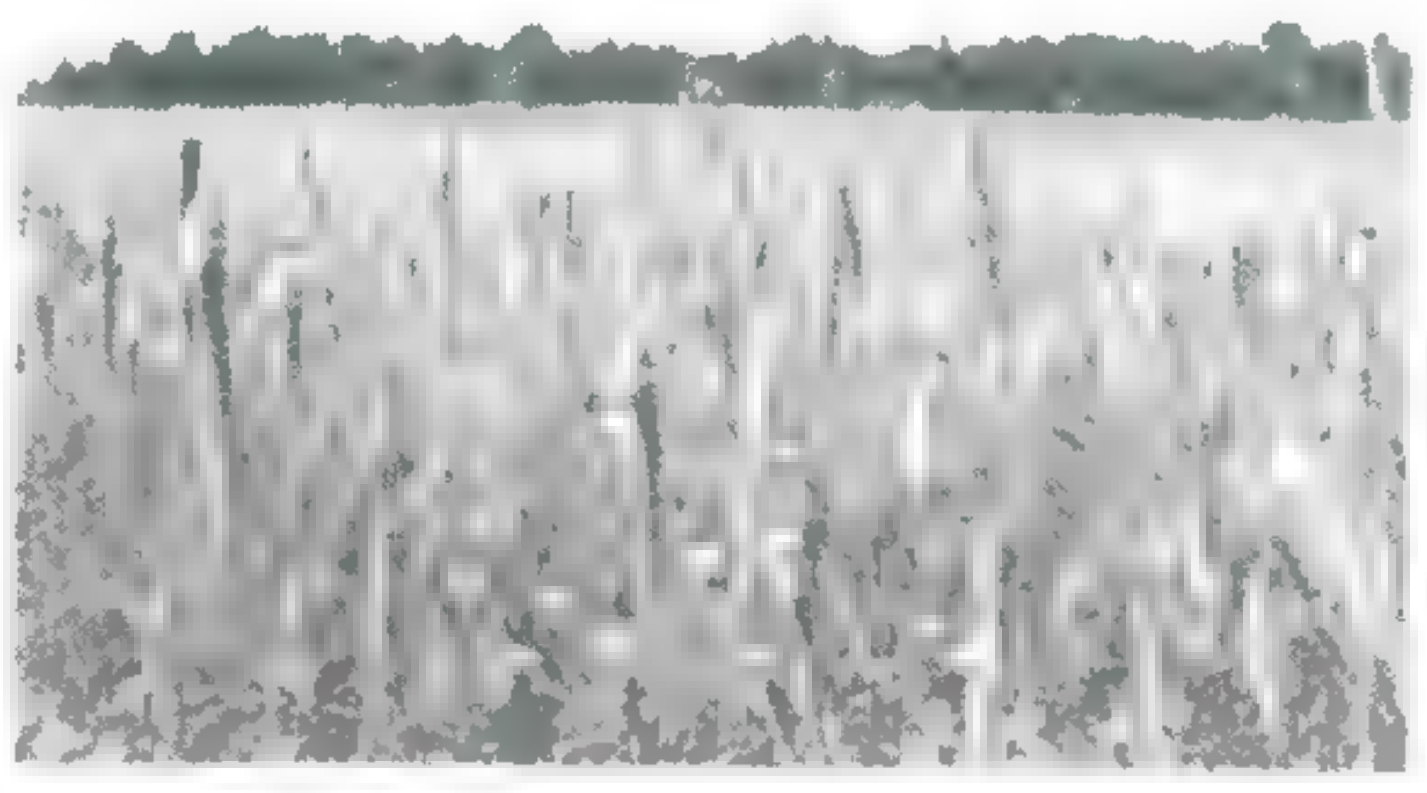
6 SATURDAY

10th Annual St. Louis Storytelling Festival

10 a.m. to 3 p.m., Shoenberg Auditorium and Japanese Garden. Join us for "A Storytelling Family Reunion" featuring local and nationally known storytellers. Sponsored by University of Missouri-St. Louis and the National Park Service at the Jefferson National Expansion Memorial (the Arch). Free with regular Garden admission.

MAY 26 / ROSE EVENING

5 to 8 p.m., grounds. Don't miss this very special Members' evening, featuring our beautiful rose gardens. Other delights include music, fabulous spring fashions from Plaza Frontenac, and a buffet supper. Watch your mail for more information. For Members only.



MAY 11 / MEMBERS' DAY Arboretum Walk

10:00 a.m. to noon, Shaw Arboretum. Guided walking tour of Arboretum wildflowers. Meet at the Visitors Center by 9:45 a.m. Call 577-5138 or 742-3512 (local area) to make reservations. For Members only.

MAY 29 / MEMORIAL DAY Summer Hours Begin

The Garden will be open daily from 9 a.m. to 8 p.m. through Labor Day, September 4. Come enjoy the long tranquil evenings with a stroll about the grounds.

MAY 7–14 / FRAGRANCE WE
"A Celebration of Scent"

Enjoy floral demonstrations, mu
entertainment, fashion, local
celebrities and much, much mor
Register to win a trip to Hawaii a
other special gifts. Sponsored by
the Garden and Famous-Barr.
See page 15 for details.

13-14 SAT.-SUN

Rose Society Sale

9 a.m. to 5 p.m. daily, Ridgway C
ter. Good buys on a wide variety
popular roses, with free advice f
experienced growers. Regular
Garden admission.

14 SUNDAY

Iris Society Show

Noon to 5 p.m., Ridgway Center
gorgeous display of a wide variet
cultivars. Free with regular Garc
admission.

15 MONDAY

Plant Clinic

9 a.m. to noon.
See May 1 for details.

19 FRIDAY

Purple Martin Evening

6:30 p.m., Shoenberg Auditoriu
and grounds. It's a tradition! Wel
come these popular birds back w
a lecture, film, and slide show in
Auditorium, followed by a stroll
through the Garden's purple mar
neighborhood. Led for the 8th y
by W. Ashley Gray III. There wil
a drawing for a purple martin hou
Cash bar; no reservations requir
Free; limited seating.

0-21 SATURDAY - SUNDAY

hlia Plant Sale

.m. to 5 p.m. daily, Ridgway
nter. A variety of beautiful speci-
n plants on sale by the Greater
Louis Dahlia Society. Regular
rden admission.

Horticulture Society Show

Noon to 5 p.m. Saturday; 9 a.m. to 5 p.m. Sunday; Ridgway Center. Displays of flowers, vegetables, perennials and houseplants. Free with regular Garden admission.

27-28 SAT.-SUN.

Rose Society Show

Noon to 5 p.m. Saturday; 9 a.m. to 5 p.m. Sunday; Ridgway Center. Everyone's favorite flower is on display. Free with regular Garden admission.

JUNE

SATURDAY

is Society Show

on to 5 p.m., Ridgway Center.
e May 14 for details.

WEDNESDAY

zz In June"

0 p.m., Cohen Amphitheater.
st of a series of four Wednesday
ening concerts featuring local jazz
sicians. (Tonight's musicians to
announced.) Lawn seating; blan-
s or lawn chairs are encouraged.
mission is $2 per person, plus
gular Garden admission.

4 WEDNESDAY

azz In June"

0 p.m., Cohen Amphitheater.
aturing the Ptah Williams Quar-
. *See June 7 for details.*

7-18 SAT.-SUN

y Society Show

on to 5 p.m. Saturday; 9 a.m. to
.m. Sunday; Ridgway Center.
onsored by the Mid-America
gional Lily Society. Free with
gular Garden admission.

JUNE 4 / SUNDAY
World Environment Day

Noon to 5 p.m., Ridgway Center and grounds. Co-sponsored by the Garden and the United Nations Association. Events and activities designed to raise public awareness of current environmental issues, including endangered species and recycling. Dancers, displays, storytelling, presentations, and audience participation. Free with regular Garden admission.

JUNE 15 / MEMBERS' DAY
"Heart Stroll"

10 a.m. to 2 p.m., grounds. Take a brisk walk through the Garden and have your blood pressure and pulse rate checked by representatives from Jewish Hospital. The Gardenview Restaurant will feature a "healthy heart" lunch special. For Members only.

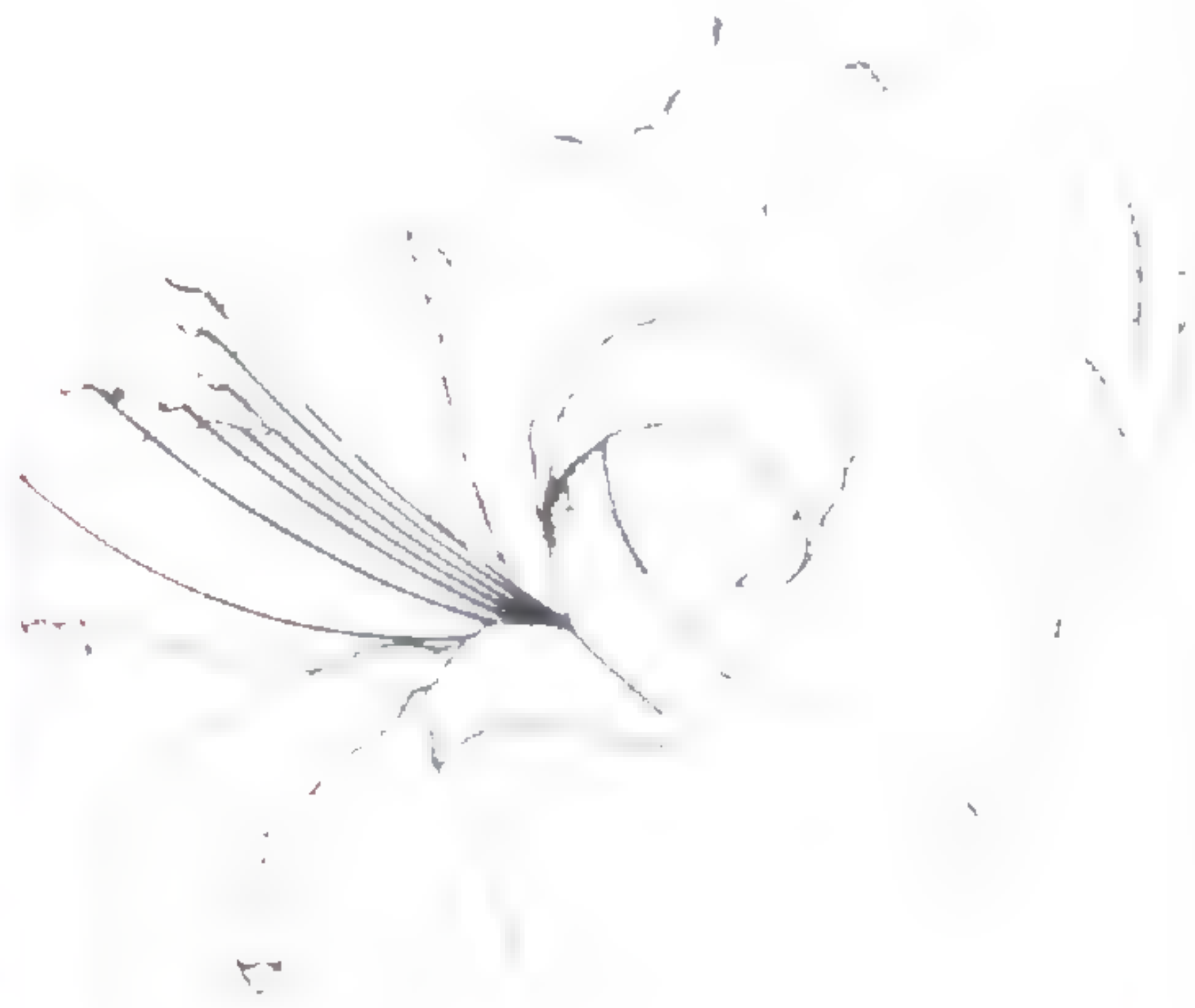
JUNE 17-JULY 4
Paintings by Robert Stolz

9 a.m to 5 p.m. daily, Ridgway Center. Fifty-four paintings of botanical subjects and floral arrangements. Free with regular Garden admission.

21 WEDNESDAY

"Jazz In June"

7:30 p.m., Cohen Amphitheater. Featuring the St. Louis Sessions Band. *See June 7 for details.*



25 SUNDAY

Daylily Society Show

Noon to 5 p.m., Ridgway Center. A lovely display of these popular flowers. Free with regular Garden admission.

28 WEDNESDAY

"Jazz In June"

7:30 p.m., Cohen Amphitheater. Musicians to be announced. *See June 7 for details.*

FROM THE MEMBERSHIP OFFICE

Membership Desk Chairman Mim Kittner (left) with volunteers Bill Richardson and Lillian Biggs.

The Membership Services Desk

The Membership Services and Information Desk is a highlight of the membership program. More than 40 specially trained and highly talented volunteers staff the Desk, located in the lobby of the Ridgway Center, just outside the Garden Gate Shop. These loyal volunteers work at the Desk full-time during peak visiting hours between April and October. Helping Members, answering questions, selling memberships, and politely and cheerfully greeting Members and visitors is what these dedicated men and women do best.

The next time you visit, stop and say hello! These warm and friendly people are here to serve you.

Fifty-Year Members

Have you been a Garden Member for 50 years—or do you know someone who has? The Membership office hopes to gather as many of you as possible for a photograph to be taken in honor of our 50th anniversary. Members from 1939 to 1944 will be included. Please call Brenda Banjak at 577-9517 for details.

Mother's Day Special!

Give your Mother the Garden for Mother's Day, or treat yourself to a Garden membership. All gifts to Mothers will be delivered on Friday, May 12, 1989, and will be accompanied by a lovely fragrance bottle. Call 577-5118 by May 8 to purchase a Mother's Day membership gift.

Thank You...

The Members' Board would like to express their appreciation to artist Jerry Thomas and to Minner Nursery Company, for generous contributions of talent and materials for recent Members' activities.

1939 50 1989
Years of Membership
Missouri Botanical Garden

◄

TWENTY-ONE YEARS AGO: Enjoying a morning meeting in the director's residence are the Members of the 1967-68 Friends of the Garden Board (left to right): Mrs. Charles Limberg; Mrs. Thomas Collins, Jr.; Mrs. William H. Bixley, Jr.; Mrs. Frank A. Thompson, Jr.; and Mrs. Bourne Bean. (From the *Bulletin*, July-August 1968.)

MAY 7–14 / FRAGRANCE WEEK

"A Celebration of Scent"

You won't want to miss this week-long celebration of fragrance and flowers featuring floral demonstrations, musical entertainment, fashion, local celebrities and much, much more! Register to win a trip to Hawaii and other special gifts. Co-sponsored by the Garden and Famous-Barr. For a complete schedule of activities, dates and times see the brochure mailed recently to Members, or pick one up at the Garden or Famous-Barr. Events at the Garden include:

Opening Day Ceremony
May 7

1 p.m., Ridgway Center. Join the Garden, Famous-Barr and media personalities as they kickoff Fragrance Week. Delight in music, a special fragrance walk featuring talking flowers, and marvelous spring floral displays. Fun for everyone!

Mother's Day Luncheon
Friday, May 12

Noon, Ridgway Center. Enjoy a beautiful fashion presentation by Famous-Barr with commentator, *Vogue* Editor, Kelly Bevan. Visit with Robin Leach, host of TV's "Lifestyles of the Rich and Famous," representing Giorgio "Red" fragrance. Take home a gift of Giorgio "Red," compliments of Famous-Barr. Other luncheon features include music by the Rivercity Trio and special attendance gifts.

Mother's Day at the Garden
May 14

Make a very special day of it! Enjoy a delightful brunch in the Gardenview Restaurant and spectacular spring flowers throughout the Garden. Mothers will receive a fragrance sample, compliments of Famous-Barr.

Garden Guides Have Openings for Volunteers

The Garden Guides are a very special group of men and women who share their love of the Garden with visitors of all ages. Guides are fully trained to discuss the history, horticulture, ecology, design, architecture and sculpture of the Garden and lead tour groups throughout the year. Volunteers commit to regular service, one day a week, plus training sessions.

The Guides currently have openings for volunteers on Wednesdays, Thursdays, and Fridays, plus a few openings for those who can guide only on Saturdays. Please call Jeanne McGilligan at 577-5187 for details.

Increased Attendance in 1988

The Garden reported a 1988 annual attendance of 714,945 persons, an increase of 7.4 percent over 1987 figures. Attendance for 1987 was 665,171.

Peter H. Raven, director of the Garden, noted that attendance figures have continued to rise each year as more and more people take advantage of the Garden's education classes, public events and special membership activities. "It has long been our goal to be a community resource for St. Louis, and we are very pleased that more people are becoming aware of and utilizing our services," Raven said.

Of the 1988 total attendance, fully 45 percent, or 325,598 persons, attended the Garden without admission charge. Raven explained that Garden Members and their families, as well as all children aged 12 and under, enjoy complimentary admission. The Garden also has maintained a consistent policy of offering free admission to all who enter the Garden before noon on Wednesday and Saturday mornings. "That policy," Raven said, "assures that anyone in our community who wants to enjoy the Garden will be able to do so."

Oral History Program

Eddie Rosenheim

Listening is a talent Mrs. Robert (Eddie) Rosenheim uses well for the Garden Library's Oral History Program. Eddie has completed more than 50 taped interviews with Garden associates, including past and present members of the Board, directors, botanists, and gardeners. Taken together, these interviews provide a history of the Garden as perceived by many of the people associated with it.

Eddie began her work for the Library in the fall of 1987, to add documentation to the Garden's archives. She began doing oral history eight years ago with the National Council for Jewish Women and has completed more than 600 interviews for that program. Her reward, she says, is learning from people of varying careers and interests. Some of her most memorable moments with the Garden program include getting to know botanists: "a totally new experience for me—finding out about their work and what they're really like as people." Of special interest to Eddie is the changing role that the Board of Trustees has played in the Garden's development through the years, and the ways Board members have contributed to making the Garden what it is today.

All of the interviews add a vital dimension to the Garden's history, often supplying information that might otherwise have been lost. Memories, expressed in individuals' own words, enrich our history as nothing else can. Eddie can be proud of the contributions she is making through her enthusiastic and competent handling of this program.

Volunteer Needed

A volunteer is needed to transcribe the oral history tapes for the archives. Excellent typing skills and a word processor are necessary. Please call Jeanne McGilligan, 577-5187, for more details.

MacArthur Grant Supports Production of Tropical Botany Film

The John D. and Catherine T. MacArthur Foundation has awarded the Garden a $250,000 grant in partial support for the production of a one-hour television special on tropical botany. The grant is part of an on-going effort by the Foundation to fund films and magazines designed to educate the public about critical environmental issues.

The Garden's film will feature Madagascar as a microcosm of the worldwide crisis of deforestation, species extinction and human survival. The work of Garden curators Porter P. Lowry II and George E. Schatz to identify and preserve quickly disappearing species of plants on the island and to develop a national park reserve on the Masoala Peninsula, the only remaining virgin rain forest on Madagascar, will be featured. (See the *Bulletin*, March/April 1989, p. 11.)

Approximately 80 percent of the 10,000 known species of plants on Madagascar are endemic and represent 25 percent of all species in the entire African region. Cattle grazing, logging, farming and firewood gathering have destroyed 90 percent of the rain forest, and it is estimated that if current survival practices continue, all remaining species will be destroyed in 20 to 30 years.

The conservation and development programs being carried out on Madagascar by the Garden will be portrayed as representative of the Garden and other institutions' tropical botany efforts worldwide.

In addition to production of the one-hour special, funds for the project will be used to produce a 15-18 minute version of the film for public education and fund-raising by the Garden. A total budget of $743,000 is required for the two films. Fund-raising is continuing to identify matching funds for the MacArthur grant. Production is expected to begin in September 1989.

Latin American Plant Sciences Network Supports Graduate Training

An exciting new project is underway to train and support botanists in Latin America. With help from the Garden and a number of North American foundations, the Latin American Plant Sciences Network was founded in February, 1988, in São Paulo, Brazil.

The Network is offering graduate fellowships (pre-Masters to Doctoral level) at six academically prestigious centers throughout Latin America. These opportunities are intended to increase the number of trained botanists in the region, where they will be able to help influence and deal with the growing pressures on the ecosystem. The Network also will foster collaboration in basic research and strengthen international scientific cooperation.

The Network is supported by generous grants from the Jessie Smith Noyes Foundation ($100,000 for two years), Rockefeller Foundation ($300,000 for two years), W. Alton Jones Foundation ($100,000 for one year), and Andrew W. Mellon Foundation ($300,000 for four years). The Missouri Botanical Garden provides assistance in the administration of these grants.

The coordinator of the Network is Dr. Mary T. Kalin de Arroyo of the Universidad de Chile. She is a long-time research associate of the Garden. First vice-coordinator is Dr. Sonia Machado de Campos Dietrich of the Instituto de Botânica de São Paulo. Dr. Enrique Forero, the Garden's director of research, was named second vice-coordinator of the Network.

The Network has been encouraged and supported throughout its development by Dr. Peter H. Raven, director of the Garden. Dr. Raven recently was named as the first "International Consultant" to the project. Dr. Enrique Forero's participation in the Network is in recognition of his leading role in developing botany in Latin America.

Did you know that Shaw Arboretum:

- is only 35 miles from downtown St. Louis, west on Interstate 44;
- contains 2,400 acres with 12 miles of hiking trails;
- offers two picnic areas including the beautiful log and stone Trail House;
- maintains seven miles of service roads perfect for bicycling, cross country skiing, jogging, and hiking;
- each year helps thousands of children to explore the natural world in a variety of fun and meaningful programs;
- offers a wide range of classes and walks for adults, including nocturnal awareness hikes, wildflower identification, nature photography, prairie evening walks, observation of migrating birds, and many other activities;
- provides a variety of interpretive materials, including the Brush Creek Trail Native Tree Guide, and the new family-oriented discovery map for Wolf Run trail;
- is home to more than 250 species of woodland and glade wildflowers that bloom in succession from March through May;
- maintains the Pinetum, a 45-acre collection of conifers from various parts of the world, which includes the majestic bald cypress that line the shore of Pinetum Lake;
- is home for deer, turkey, mink, coyote, bobcat and many other forms of wildlife;
- offers beautiful views from the limestone bluffs overlooking a three-mile section of Meramec River, which passes through the property;
- provides access to a large gravel bar along the river, accessible by one of many hiking trails;
- provides a dazzling early spring display of daffodils in the rolling meadows surrounding the lake;
- offers narrated Wilderness Wagon tours on Sundays in the spring and fall;
- provides bus, Wilderness Wagon and walking tours for groups such as garden clubs, senior citizens' groups, and others;
- sponsors wildflower walks every Tuesday morning during the spring, which are led by knowledgeable guides from the Webster Groves Nature Study Society;
- is a refuge for people seeking a quiet place to enjoy and learn about the natural world.

The Arboretum staff would like to invite all Members to visit the Arboretum in the near future. The Arboretum is a place for all seasons, and a visit at any time of the year has its rewards.

We hope to see you at the Arboretum soon!

A view of the Pinetum Lake

Prairie Plants for Sale

Seedlings of popular prairie plants will be available for purchase at the Arboretum Visitor Center beginning May 15. Fourteen species of prairie wildflowers and two species of grasses will be sold. Quantities will be limited. These prairie plants are sun-loving perennials and are very tolerant of drought.

The March/April 1989 issue of the *Bulletin* described a new native plant and wildflower area to be developed at the Arboretum. This development is made possible by a gift from the Whitmire family, whose generosity is deeply appreciated.

Raven Honored By National Wildlife Federation

Peter H. Raven, director of the Garden, was honored in Washington, D.C. on March 18 by the National Wildlife Federation. He was named the recipient of the 1988 National Conservation Achievement Award for Science.

Jay D. Hair, president of the National Wildlife Federation, said that Raven's "research into plant evolution and his strategies for studying the rapidly vanishing tropical plant world merit the Federation's highest form of recognition." The award is given annually to individuals who have made outstanding contributions to the conservation of our nation's environment, wildlife and natural resources.

As director of the Garden, Dr. Raven supervises the most active tropical botany research program in the world. He is an internationally respected scientist and Engelmann Professor of Botany at Washington University, and is also known widely as an outspoken leader in efforts to catalog plants of the rapidly vanishing tropical rain forests. He has worked tirelessly with international groups such as the Organization for Tropical Studies, the World Wildlife Fund, the National Geographic Society, and the National Academy of Sciences.

The National Wildlife Federation, founded in 1938, is pledged to encouraging "the intelligent management of the life-sustaining resources of the Earth." Headquartered in Washington, D.C., it represents 5.1 million members.

The CAMPAIGN *for the Garden*

NSF Awards Grant

Large trees are protected with plastic while construction takes place inside the Climatron.

UPDATE: As of March 15, 1989 the Garden's $16 million capital campaign has raised $14,700,251 in gifts and pledges.

IN March, the Climatron renovation project received a wonderful boost when it was awarded a $257,385 grant from the National Science Foundation. This award will support environmental science exhibits and interpretive signage to be installed as part of the Climatron's new display scheme, as well as the production of additional interpretive materials that build on these.

The award was made from NSF's Informal Science Education Program, which supports "projects that strengthen and enhance the scientific and technical understanding of the public outside of the formal education environment." Historically, the Climatron has portrayed the stunning beauty and variety of tropical plant species—and also interpreted for visitors the biological characteristics of tropical regions, the important ecological roles played by their many native plant species, and their importance for us as consumers of tropically derived products. The renovated Climatron will significantly increase this educational function through exhibits, signage, and adjunct interpretation geared to the different learning needs of children and adults.

Exhibits supported by NSF are:

The Buttress Tree/Fallen Log Exhibit, which explores how trees adapt to shallow tropical soils and the many environmental changes caused by forest deadfall and its decomposition;

The Forest Bridge, a walkway through the treetops allowing eye-level access to the many plants and trees that flower high in the canopy, a story (or layer) of plant growth hosting plant and animal communities unlike those found in other stories;

Products From Plants, which depicts the many tropically derived foodstuffs, medicines, industrial and other consumer products on which we daily depend; and

The Talking Orchid, a child-oriented, "marionette"-like device presenting survival methods of ephiphytic plants (those getting nourishment by means other than roots in soil).

Over the next two years, three staff members of the Education Division, with partial NSF support, will revise or produce classroom and audiovisual materials, tour scripts, pamphlets, reading lists, and other items for use in conjunction with the new exhibits and signs, particularly by those 95 percent of the Climatron's visitors who see the building on a self-guiding basis.

CENTENNIAL *continued from page 8*

and the Trustees, led by then-president Robert Brookings Smith, agreed. The new greenhouse, the Climatron, opened in 1960.

The effect was tremendous. Attendance in 1958 was only 218,000; in 1960, it was 423,000. The Trustees saw the Climatron as a means of generating income for the Garden, and started charging admission to the greenhouse. At 50 cents for an adult, the Climatron brought in $2,000 a week during the first few months it was open.

From 1960 through the balance of the decade, the Trustees sought to solidify the gains they had made with the Climatron. Primarily, they sought to bring the Garden's finances into order. In 1966, they instituted an admission fee to the Garden for the first time in history. And it paid off. Operating income increased, from just under $400,000 in 1960 to $600,000 in 1970. Research grants, and grants for other special projects, jumped from around $50,000 in 1960 to just under $300,000 in 1970.

By 1965, under a new director, David M. Gates, and a new president, Henry Hitchcock, the Garden was operating with a balanced budget for the first time in decades.

Two years later, with Harry E. Wuertenbaecher, Jr. sitting in the president's chair, the Trustees opened the Garden's first ever capital fund drive, to raise $3 million to construct a building for the education and scientific programs. They encouraged the Garden's education and scientific staff to be more aggressive in pursuing grants.

Even with the gains, there was still far to go. As one staff member would point out later, the Garden in 1970 was the Climatron and a series of flower shows. The Garden also lacked a certain stability. While it had had just two directors for its first 64 years post-Shaw, it had had three, and an equal number of acting directors, in the last 16.

But that would all change, for the better, with the turning of a new decade.

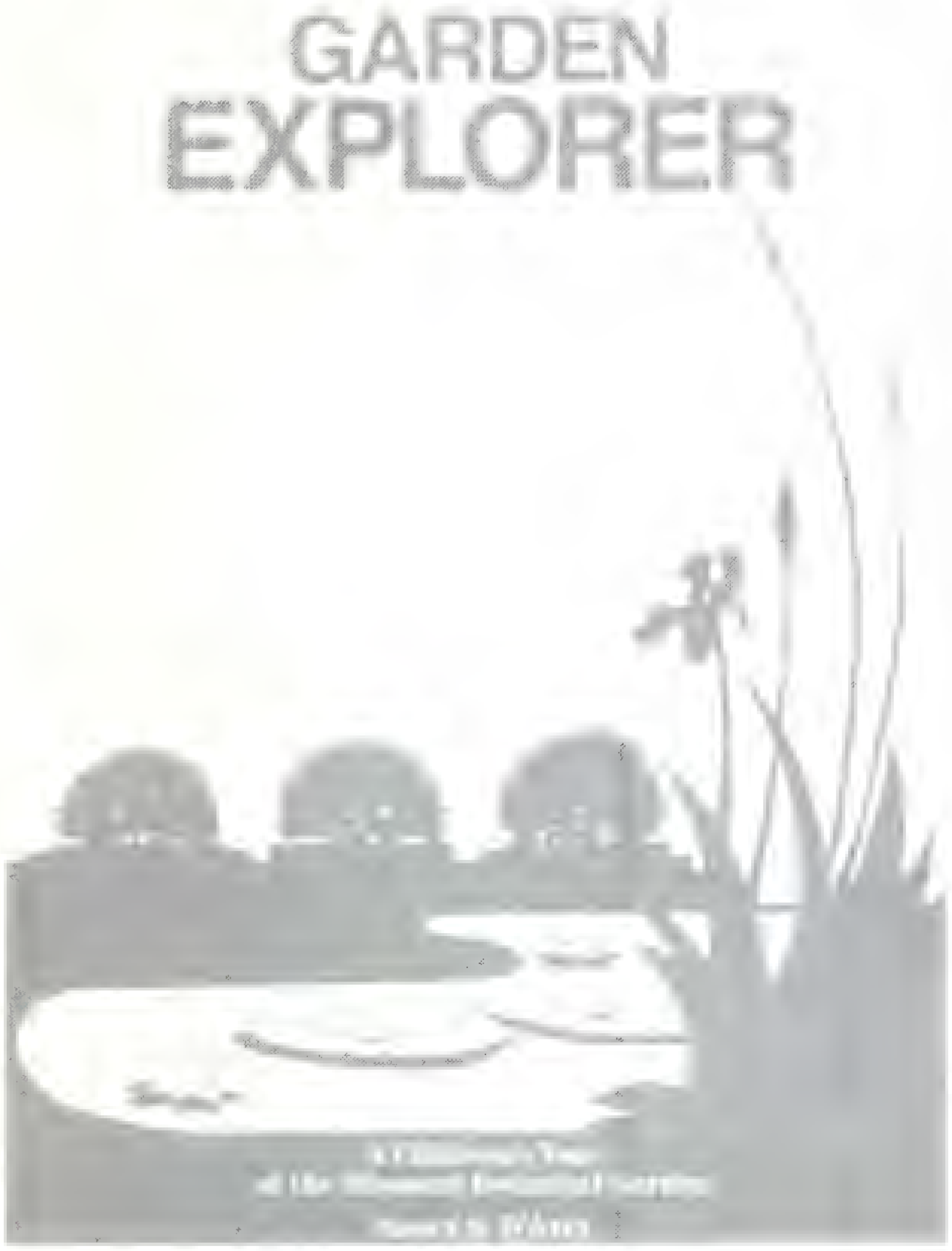
—To be continued

EDITOR'S NOTE: Joseph M. Schuster is a former editor of the Bulletin. *He is a freelance writer whose work has appeared in* St. Louis *Magazine,* Sport *Magazine,* Southern Style, *and* USA Today. *Mr. Schuster lives in St. Louis. This history of the Board of Trustees and the growth of the Garden will be published in installments in the* Bulletin *during 1989.*

Garden Hosts Conference on Genetics and Population Biology of Rare Plants

With the aim of bettering efforts at conserving and managing rare plant species, the Garden hosted a gathering of about 70 population biologists, geneticists, conservation biologists, and government officials on March 9-11. The broad topics considered included genetic variation in wild populations, ecology and population structure of rare species, genetics of rare species in cultivation, strategies for protecting genetic variation, and recommendations stemming from the rest of the conference.

The conference was organized by the Center for Plant Conservation, which is a national organization of botanical gardens, including the Missouri Botanical Garden, dedicated to backing up wild populations of endangered species through cultivation and seed banking. The international roster of participants included members of the Garden's staff along with faculty members from St. Louis University and Washington University.



Garden Explorer Is Published

A new guidebook to the Garden, written expressly for children, is available in the Garden Gate Shop. The *Garden Explorer,* written by staff teacher Nancy S. D'Arcy, is an eye-catching folder filled with illustrated activity sheets. Each sheet discusses a different area of the Garden, including its plants and its history. As children tour the Garden and complete the sheets, they will learn about trees, garden design, types of seeds, plant families, pollination and more.

The *Garden Explorer* is available in the Shop for $2.50. Additional activity sheets will be offered each season.

NEWS FROM TOWER GROVE HOUSE

ALBUM QUILT AWARDED (left to right): Edith Weis, a Member of the Garden; Norma Silber, manager of Tower Grove House; and Virginia Blume, president of the Tower Grove House Auxiliary, are shown with the album quilt Mrs. Weis won in a drawing. The quilt, which features scenes of the Garden, was the centerpiece of a quilt exhibit in the Ridgway Center last September.

Henry Shaw's Bedroom Is Changed

Research has discovered that the front (northwest) bedroom in Tower Grove House, which had been designated as Henry Shaw's, was actually the guest room. Mr. Shaw used the back (southwest) bedroom for himself. In honor of the Centennial of the Board of Trustees, and the 30th anniversary of the Tower Grove House Historical Committee, the two bedrooms will be redecorated to reflect the change. The Committee is selecting carpeting and furnishings, and having the paint in the rooms tested to determine original colors. The renovation is expected to be complete in 1989.

Baltzer Fellowship

The 1988-89 Elizabeth Ammerman Baltzer Fellowship has been awarded to Ms. Donna I. Ford, a graduate student at Washington University. The Baltzer Fellowship, which was established in 1987 through the generosity of several anonymous donors, honors the memory of Elizabeth A. Baltzer, who received her M.A. degree in botany from Washington University in 1939. The Fellowship provides an annual stipend to a female graduate student or postgraduate fellow in plant systematics or ecology.

Ms. Ford, who also received the Fellowship in 1987-88, is a doctoral student studying the systematics and evolution of South American *Calandrinia*, a member of the Portulacaceae or purslane family. She has completed two extended field trips in Chile and Argentina as part of her research.

From the Garden Gate Shop

Mother's Day Is May 14

Visit the Shop to select the perfect gift for Mother's Day. The Gift Shop is featuring colorful handbags, decorative pillows, soaps, potpourri, fashion jewelry and porcelain music boxes. The Plant Shop is offering a lovely selection of blooming plants, tropicals, hanging baskets and miniatures roses.

Father's Day Is June 18

For Father's special day, the Shop has a handsome assortment of gifts, including fine gardening tools, distinctive sundials, wind chimes and interesting books. There are also great selections of gifts for weddings, graduations and birthdays. Gift certificates are always available.

Trustee Profiles

SAMUEL HAYES

Recently, two new term-trustees were elected to the Garden's Board: Samuel B. Hayes, president of Boatmen's Bank, and Andrew C. Taylor, president of Enterprise Leasing Company.

Samuel Hayes came to St. Louis from Tulsa, Oklahoma in 1986 to head Boatmen's Bank. He served as an executive vice president and then as president of the Bank of Omaha for ten years prior to his arrival in St. Louis. When questioned about St. Louis' arts and cultural programs, Hayes said that he found the commitment and involvement to cultural institutions in the St. Louis area extraordinary.

A graduate of Yale and Harvard universities, Hayes has always demonstrated active support of civic efforts. He was chairman of the Board of Trustees of the Children's Medical Center in Oklahoma and a board member of a number of additional civic organizations.

Since he arrived in St. Louis, Hayes has become a participant in a long list of civic activities. Presently he is a trustee of the St. Louis Art Museum, a commissioner of the St. Louis Science Center, the 1989 co-chairman of the Zoofari, and was recently appointed a trustee of St. Louis University.

When asked about his interest and role as a member of the Garden's Board of Trustees, Hayes commented that it was exciting to see such positive activity underway at the Garden. "I was terribly impressed with what the Garden had accomplished and with the leadership capabilities of Dr. Raven. I wanted to be a part of that effort and am supportive of the momentum the Garden has going. My interest and objectives as a Trustee are to be a part of this extraordinary institution and help it move forward."

Hayes, who is originally from New Jersey, and his wife, Kathryn, have three children.

ANDREW TAYLOR

Andrew C. Taylor, a lifelong resident of St. Louis, has been president of Enterprise Leasing Company since 1980. The company, a family business Taylor's father started in 1957, leases automobiles and light duty trucks to small businesses and individuals.

Taylor travels frequently from coast-to-coast, supervising nearly 500 locations in rent-a-car operations throughout the country. He commented that he has a chance to see many other cities that have much to offer, while others are lacking. "One of the things that makes St. Louis special is the Garden. It is a jewel. It's important that all of us do what we can to keep it special. This requires strong support from the corporate community and I am pleased to be able to lend whatever expertise I have to benefit the Garden," said Taylor.

Taylor plans to participate actively in Garden efforts and sees the Garden as an amazing community resource. "It is an institution that makes St. Louis an exciting place, and it encourages more people to visit and settle permanently in this area," he said. Along with the Garden's Board of Trustees, Taylor also serves as a trustee and treasurer of KETC Channel 9 and is a member of Blue Cross of Missouri.

He and his wife Barbara returned to St. Louis after a short stay in San Francisco in 1973 and have three teenage daughters.

Both Mr. Hayes and Mr. Taylor have expressed a genuine commitment to Garden activities. Taylor has already agreed to serve as co-chairman of the 1989 Centennial Celebration to be held on September 9, and both Trustees are members of the Garden's Henry Shaw Annual Giving Campaign, an important committee whose fund-raising efforts assist the Garden in obtaining the much needed general operating support for the services to the public and general maintenance of the Garden's grounds.

Moving? Please Remember To Send Us Your New Address.

To avoid missing any of your membership mailings, you *must* give us your new address at least three weeks *before* you move. Please enclose the mailing label on the back cover of this *Bulletin*, and mail to: Membership Office, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166.

Name:______________________

____

Old Address:

____

City______________________

State__________Zip__________

New Address:

____

City______________________

State__________Zip__________

Date Effective:______________

Phone (day)______________

On January 24, 1989, Mrs. Raven hosted a luncheon at the Garden in honor of Nien Cheng, best-selling author of *Life and Death in Shanghai*. Nien Cheng was in St. Louis to address the 70th anniversary dinner of the International Institute of Metro St. Louis, an organization that assists refugees. Dr. William Tai, coordinator of the Flora of China project, and Mrs. Tai also attended. Pictured above, left to right: Mrs. Arthur Stockstrom, Nien Cheng, Mrs. Horton Watkins (first president of the International Institute), and Mrs. Lloyd Stark.

Gardenview Restaurant Introduces Biodegradable Containers

On February 1, 1989, the Garden officially switched from polystyrene foam to paper for carry-out containers in the restaurant. This change reflects the Garden's policy of practicing environmental responsibility.

Polystyrene foam is not biodegradable, cannot be recycled, and contributes substantially to the volume of solid waste clogging the world's garbage disposal systems. In a 1986 study of the top 20 chemicals whose manufacture contributes the most hazardous waste to the atmosphere and waterways, polystyrene ranked number five. Production of polystyrene also produces chlorofluorocarbons, which have been linked to the deterioration of the Earth's ozone layer.

Tributes

JANUARY - FEBRUARY 1989

In Honor Of:

Mr. and Mrs. Malcolm Graham Alexander
Mrs. Blanche J. Freed

Mr. John H. Biggs
Mr. and Mrs. Joseph J. Gazzoli

Mr. Harold Brod
Mr. and Mrs. Joseph F. Ruwitch

Mr. Donald Brown
Mrs. Ray Magidson
Mrs. Evelyn Vogel

Ms. Barbara Brundage
Ladue Garden Club

Mrs. Theresia Bumm
Miss Toni Albers
Mrs. Ann King

Mr. and Mrs. Herbert Cross
Mr. and Mrs. Alfred S. Kilpatrick

Dr. Harold Cutler
Dr. and Mrs. Norman W. Drey
Mrs. John Isaacs Jr.
Dr. and Mrs. Harry Rosenbaum
Mrs. Samuel D. Soule
Dr. and Mrs. Helman C. Wasserman
Ms. Jean S. Weinstock

Ms. Juanita Davis
Mrs. Dorothy B. Schukar

Mrs. Vickie Dillon
Mr. and Mrs. Charles J. Cook

Mr. and Mrs. Jack Edlin
Mr. and Mrs. Richard Prager

Mr. and Mrs. Milton Freund
Mrs. Ben H. Senturia

Mr. and Mrs. Roy Gallagher
Mrs. Arthur Epstein

Mr. Doug Gilberg
Bennett Hills Garden Club

Mr. and Mrs. Whitney Harris
Mrs. Bobby S. Erlich
Mr. Guy Jester
Mr. and Mrs. Robert S. Weinstock

Mr. Donald Harston
Ms. Gertrude Cohen

Mr. Jack Jennings
Webster Groves Garden Club – Group 24

Mr. and Mrs. Harold Kessler
Mr. and Mrs. Harvey Shapiro

Mr. and Mrs. T. M. Knobel
Mrs. Carl F. Kottmeier

Mrs. Minnette Kretchmar
Mrs. Bernice Kranson

Mrs. Willard Levy
Dr. and Mrs. Harry Rosenbaum

Mr. and Mrs. Stanley Lopata
Dr. and Mrs. I. Jerome Flance

Clarence Mange
Mrs. Henry L. Freund

Mrs. Eleanor McClure
Dr. and Mrs. Graydon L. Ballard Jr.

Mrs. Julie Morris
Mr. and Mrs. Richard J. George

Mrs. Paul F. Ring
Dr. and Mrs. Leigh Gerdine

Dr. and Mrs. Herbert E. Rosenbaum
Mr. and Mrs. John K. Riedy

Hatti Rubin
Mr. and Mrs. Phillip Schreiber

Mrs. William H. Schield
Mr. and Mrs. Paul M. Arenberg
Dr. and Mrs. Harold M. Cutler
Dr. and Mrs. Max Deutch
Mr. and Mrs. Leo Drey
Dr. and Mrs. Norman W. Drey
Mr. and Mrs. Norman Drey Jr.
Mrs. Harry Esserman
Mrs. Fred Frank
Mrs. Ina B. Freund
Mrs. Rose L. Heifetz
Mrs. Peggy R. Hellman
Mrs. Leonard M. Landsbaum
Mr. and Mrs. C. B. Lears
Mr. and Mrs. Edwin B. Meissner Jr.
Mrs. Hubert C. Moog
Mr. and Mrs. Jesse S. Myer III
Mrs. Carl Otto
Mr. and Mrs. Richard Prager
Mr. and Mrs. Louis R. Putzel
Mr. and Mrs. Paul Fusz Ring
Dr. and Mrs. Harry Rosenbaum
Mr. and Mrs. Joseph F. Ruwitch
Mrs. Marjorie S. Salz
Mrs. Helen G. Shifrin
Mrs. Samuel D. Soule
Mr. and Mrs. Joseph L. Tucker
Mr. and Mrs. Helman C. Wasserman
Mrs. Helen G. Wolff
Mr. and Mrs. Tom Wolff

Miss Melissa G. Stern
Mr. and Mrs. Andrew R. Zinsmeyer

Mr. and Mrs. Luther Taylor
Ms. Linda Dennis

Mrs. Myrtle Weinrobe
Mrs. Sally Kushins

Mrs. Blanton Whitmire
Town & Country Garden Club

Mrs. Denver Wright
Miss Rosemary Woodworth

Mr. Irwin Yare
Miss Gerry Barnholtz
Miss Marian Barnholtz

In Memory Of:

Mr. Richard Alt
Mr. and Mrs. Wayne J. Bennetsen

Mrs. Kathrine Amann
Mr. and Mrs. Norman O. McCracken

Mrs. Estelle S. Anderson
Ms. Eugenia Faenger

Mr. Harold V. Auchly
Mr. and Mrs. Ken Hubert and Daughter
Mr. and Mrs. Robert D. Rich

Mrs. Harold Baer
Mr. and Mrs. Myron Glassberg

Mr. Sol Bankendorf
Dr. and Mrs. Robert W. Murray

Mr. Charles Alan Bennett
Ms. Loretta G. Kovar

Dr. Edward J. Berger
Miss Gena E. Fish
Mr. Tom Nail
Dr. and Mrs. Jack Tippett

Dr. Vilray P. Blair Jr.
Mr. and Mrs. Auguste Chouteau
Mrs. Townsend Foster
Mrs. George W. Skinner

Mrs. Marilyn Bohley
Mr. and Mrs. Walter Hosea

Alois T. Bolfing
Mrs. Gloria Luitjens

Mr. Ben Borus
Mrs. Henry L. Freund

Mrs. Pat Bowles
Mr. and Mrs. John W. Albers

Mr. Joseph Bradburn
Mr. and Mrs. Robert D. Rich

Mrs. Angie Brindley
Mr. and Mrs. Donald M. Strathearn II

Mr. George Carlson
Lynn Plotkin

Anne Wallace Chapin
Mr. and Mrs. Richard K. Morse

Nora Clouss
Ms. Betty Brueggeman
Mr. and Mrs. Harry T. Bussmann III
Ms. Bonnie Starcher

Mr. Sidney Cohen
Miss Gerry Barnholtz
Miss Marian Barnholtz
Mr. and Mrs. Tom Wolff

continued on next page

Tributes

continued

Mr. Jack Conreux
Mr. and Mrs. Fred Levis

Mr. Lewis Corbin
Mr. and Mrs. William E. Remmert

Mr. Eugene R. Corey
John and Marian Bleeke

Mrs. James B. Costen
Eugene and Marilyn Bischoff
Dr. and Mrs. Marshall B. Conrad
Dr. and Mrs. William S. Costen
Mrs. Henry P. Duncker
Mr. and Mrs. Dick Eberle
Mr. and Mrs. J. Barry George
Ms. Charlotte Glessmer
Ms. Irma Glessmer
Dr. and Mrs. Paul O. Hagemann
Mr. and Mrs. Oscar P. Hampton III and Michael
Merrill and Ruth Graeler Hinzpeter
Mrs. Pam Holmes
Mr. and Mrs. Hiram S. Liggett Jr.
Mrs. Carolyn C. Martin
Mr. and Mrs. Carroll F. McMahon
Mrs. Roland O'Bryen
Dr. and Mrs. Roy W. Osterkamp
Mr. and Mrs. Albert M. Rosenberg
Mr. and Mrs. Glenn R. Siler
The Gatesworth—Residents Association
Mrs. Aldine Viehmann
Mrs. Doris A. Wright
Mr. and Mrs. Charles Wulfing

Mrs. James E. Crawford
Mr. and Mrs. Charles F. Limberg
Mr. and Mrs. Randolph C. Wohltman

Mrs. Irene Cummings
Mr. and Mrs. Alex Hawksbee

Mr. Ned Dare
Mr. and Mrs. Bruce E. Bradley

Mrs. Elsie Davis
Mr. George R. Durnell

Laura B. deJong
Mr. and Mrs. Robert deJong
Marjorie Mauller
Janice Walker

Mr. and Mrs. Ed Dolnick's Daughter
Dr. and Mrs. Donald Ross

Dr. Steven L. Dresler
Missouri Botanical Garden—Members' Board
Mrs. Norma M. Silber
Mr. and Mrs. Walter G. Stern

Mrs. Martha Endres
Mr. and Mrs. Harold Ahner
Mr. and Mrs. Glen Alspaugh
Baldor Electric Company—Fort Smith, Arkansas
Baldor Electric Company—St. Louis Employees
Mr. Frederick C. Ballman
Mr. and Mrs. George Barnes Jr.
Mr. and Mrs. O. A. Baumann
Mr. and Mrs. Steven G. Beussink
Mr. James E. Bracken
Mrs. Phillip Braun
Ms. Ruth E. Buerke
Mr. Frank M. Bush
Dr. and Mrs. Marshall B. Conrad
Mr. and Mrs. Norman W. Cordes
Mr. and Mrs. Charles H. Cramer
Catherine Dooley
Mr. and Mrs. E. Peter Elsaesser
Richard L. Filbrun Family
Mr. and Mrs. Henry W. Heck
Mr. and Mrs. Robert Howell
Mr. and Mrs. Harvey D. Johnson
Mr. and Mrs. Terrell H. Johnson
Mr. and Mrs. Leonard J. Karpowicz
John J. Kelly Family
Mr. and Mrs. John V. Kelly
Kiser & Associates
William C. Kiser Family
Nancy S. Lumpkin
Lucille Maassen and Family
Mrs. Virginia J. Mackey
Mr. and Mrs. Bernie Markus and Holly
Mr. and Mrs. James R. Marr
Peper, Martin, Jensen, Maichel and Hetlage
Mrs. Charles S. Powell
Mr. and Mrs. T. C. Rambach
Mrs. Walter A. Rambach
Mr. and Mrs. William R. Richard
Mr. and Mrs. Richard A. Roloff
James and Linda Schiele
Mr. and Mrs. John Schleiffarth
Mr. George A. Schock
Mr. and Mrs. Ralph E. Schulenburg
Mr. and Mrs. Norman Schute
Mr. and Mrs. Howard W. Schwartz
Mr. and Mrs. James H. Senger
Mr. and Mrs. Ludlow Shonnard Jr.
Ludlow Shonnard III Family
Mr. and Mrs. H. P. Swederska
Mr. and Mrs. Robert D. Taake
Mr. and Mrs. Gary E. Tate
Susan Terrell-Torres and Family
Mr. and Mrs. Mercer L. Treanor
Mr. and Mrs. Vincent H. Wahlig
Mr. and Mrs. J. Leonard Walther
Mr. and Mrs. Robert T. White
Mr. and Mrs. Alfred E. Winholt

Mr. Elleard Entzeroth
Mr. and Mrs. Merlin Lickhalter

Mr. Fink
Mr. and Mrs. Lawrence P. Badler

Mrs. Patricia Firman
Mr. and Mrs. Warren Glickert

Miss Kathleen Fletcher
Mr. and Mrs. Robert E. Power

Mr. Frank Fowle
Mr. and Mrs. Henry W. Dubinsky
Missouri Botanical Garden—Members' Board
Mr. and Mrs. Chuck Schagrin

Mrs. Alma C. Frank
Mr. and Mrs. Henry Belz III
Mr. and Mrs. William T. Dooley Jr.
Mr. and Mrs. John O. Felker
Mrs. Eva H. Harper
Mr. and Mrs. Frank L. Key
Mr. and Mrs. William F. Reck Jr.
Mr. and Mrs. Joseph F. Ruwitch
Mrs. George W. Skinner

Mr. Eugene Frenzel
Mrs. Ruth Schwartz

Ida and Sam Friedman
Dorismae and Harvey Friedman

Mr. Clarence Fritz
Ms. Rebecca L. Barnard

Mrs. Charles F. Galt
Mr. and Mrs. Eugene Pettus Jr.

Mr. Edward F. Gereke
Mrs. George W. Skinner

Mr. Goswin H. Gern
Jim and Nora Law

Mr. Jerry Gers
Mrs. Pauline T. Gers

Ellen Goldstein
Sally Kushins

Mrs. Ethel Graves
Viola Nadler

Ruth and Sam Hacker
Dorismae and Harvey Friedman

Mrs. Florence Hagen
Mr. and Mrs. Warren Glickert

Louis Busch Hager
Mr. Robert N. Hagnauer

Mr. Alfred B. Hallowell
Mr. and Mrs. J. John Brouk
Mrs. Townsend Foster
Mrs. Victoria C. Simmons

Mrs. Viola Henderson
Ms. Linda L. Lewis
Mr. E. B. McDonald

Mr. George J. Herbst Jr.
Mr. and Mrs. J. John Brouk
Dr. and Mrs. George Mendelsohn

Mrs. Bernice Hougland
Mr. Kurt A. Hougland
Mr. and Mrs. Jeffrey McGuire

Florence Humphrey
Margaret Yanevich

Mrs. Ethyl Jesdale
Mrs. Ruth E. Scott

Mr. A. Clifford Jones Jr.
Mr. and Mrs. J. Allen Brinkmeyer
Mrs. Ellen R. Conant
Mr. and Mrs. John R. Roberts

Mr. Samuel Katz
Mr. and Mrs. Ira Dubinsky

Mrs. Clara M. Kern
Mr. and Mrs. William P. Haviluk Jr.

Mrs. Jeanne Kerwin's Brother
Miss Gerry Barnholtz
Miss Marian Barnholtz

Miss Clara Knittel
Mr. and Mrs. Clayton A. Pratt

Mrs. Hanano Kodera
Mr. and Mrs. David A. Wright

Mr. August Koenig
Dr. and Mrs. Edward J. Miller

Mr. John Krabill
Mr. and Mrs. John B. Henkle

Miss Erna Krenning
Beaumont High School Teachers

Laura Ann Kromer
Dr. William G. Albrecht and Staff
Mr. and Mrs. James E. Hanick

Henrietta H. Lammert
Mrs. William Bixby Jr.
Mrs. James S. McDonnell Jr.

Mr. Paul Langenbach
Ms. Donna A. Branson

Mr. Willard Levy
Mr. and Mrs. William R. Hostetler

Mr. Claxton I. Long
Mr. and Mrs. Hugh McPheeters

Mrs. Marie G. Ludwig
Justine Maier
Patricia McKissack
Ms. Mary D. Voelker

Mr. Marion Mackey
Mr. and Mrs. John O. Felker

Minna Peterson Marshall
Mr. and Mrs. John F. Doyle
Ms. Frances B. Floerke
Mr. and Mrs. John Halloran
Mrs. Elizabeth Hedges

Raymond Matuzzi
Mrs. Irene G. Mayes

Mr. Lansden McCandless
Mr. and Mrs. John G. Goessling

Mr. Hugh McPheeters Jr.
Mr. and Mrs. Whitelaw T. Terry Jr.

Hon. James H. Meredith
Mr. Robert N. Hagnauer

Mrs. Esther Meyer
Mrs. Charise L. Rott and Family

Mrs. Milton Mild
Mrs. William H. Leyhe Jr.

Mr. William Moehlenbrock
Mr. and Mrs. Robert P. Elsperman

Mr. Hubert Moog
Ms. Lynn Plotkin

Mrs. John Morfit
Mrs. Newell A. Augur
Judge and Mrs. Roy W. Harper
Mr. and Mrs. Henry Hitchcock
Mr. and Mrs. Charles F. Limberg

Mrs. E. C. Mulhern-London
Mrs. Marie P. Cook

Miss Nellie Mullarkey
Mr. and Mrs. William R. Orthwein Jr.

Mr. Martin Mutterperl
Mr. and Mrs. Lester R. Adelson

Maxine Neill
Ms. Lynn Plotkin

Mrs. Dale Neiswander
Mrs. Ralph W. Morrison

Mrs. Chapin Newhard
Mr. and Mrs. M. M. Alexander Jr.
Mr. and Mrs. Clarence C. Barksdale
Miss Mary E. Bascom
Mr. and Mrs. Richard J. Bender
Mrs. Dorothy M. Bergland
Ann and Lilli Biraben
Mrs. William A. Borders
Mr. and Mrs. Ingram F. Boyd Jr.
Mrs. Louise Kennard Boyd
Maggie Bradbury
Mr. and Mrs. Robert R. Cave
Centerre Bank N.A.
Mr. and Mrs. Anthony J. Chivetta
Mr. and Mrs. Auguste Chouteau
Mr. Charles E. Claggett
Miss Joanna M. Clavenna
Mr. and Mrs. F. Crunden Cole
Mr. and Mrs. George K. Conant Jr.
Mr. and Mrs. John P. Cummings
Mr. and Mrs. Donald Danforth Jr.
Deloitte Haskins & Sells
Mrs. Dumont G. Dempsey
Mr. and Mrs. William L. Desloge
Mrs. Melville Dunkelman
Mr. and Mrs. Ernest A. Eddy Jr.
FitzGerald & FitzGerald, P.C.
Mrs. Samuel F. Gordon
Mr. Clark V. Gr
[illegible]

Mr. and Mrs. Richard S. Hawes III
Mr. and Mrs. George L. Hensley
Mr. and Mrs. Frederick A. Hermann Jr.
Mrs. Richard D. Hughes
Interco Inc.—Officers and Directors
Mr. and Mrs. W. Boardman Jones Jr.
Mrs. James Lee Johnson
Mrs. James L. Johnson Jr.
Mr. and Mrs. Harold T. Jolley Jr.
Mr. and Mrs. Samuel M. Kennard III
Dr. E. Lawrence Keyes
Mr. and Mrs. E. Lawrence Keyes Jr.
Mr. and Mrs. Gerhardt Kramer
Mr. and Mrs. Robert E. Kresko
Mr. and Mrs. Clinton W. Lane Jr.
Mr. and Mrs. Charles F. Limberg
Mrs. Carl E. Lischer
Mr. and Mrs. Al S. Loeb
Mr. and Mrs. Russell E. Lortz
Mrs. William M. Love
Mr. and Mrs. John Peters MacCarthy
Mrs. Frank Mayfield Jr.
Mr. and Mrs. William B. McMillan Jr.
Mr. and Mrs. Hugh McPheeters
Mr. and Mrs. Jefferson L. Miller
Mrs. Eleanor J. Moore
Newhard, Cook & Co., Inc.
T. J. O'Hara
Miss Marye B. Otto
Mr. and Mrs. William J. Phelan
Jacque Phillips
Ms. Virginia W. Priesmeyer
Mr. and Mrs. Michael E. Pulitzer
Mr. and Mrs. Thomas R. Remington
Mrs. A. Wessel Shapleigh
Mrs. John M. Shoenberg
Mr. and Mrs. Emory Slater and Family
Mr. and Mrs. Robert Brookings Smith
Mr. and Mrs. Rolla W. Streett
Mrs. Whitelaw T. Terry
Mr. and Mrs. Edmonstone F. Thompson
Mrs. Barbara B. Tierney
Mrs. John C. Tobin Jr.
Mrs. Daniel Upthegrove
Mr. and Mrs. John K. Wallace Jr.
Mrs. Mahlon B. Wallace Jr.
Mr. and Mrs. Edward D. Weakley
Mr. Harry E. Wuertenbaecher Jr.
Mr. Chapin Newhard Jr.
Mrs. William A. Borders
Mr. and Mrs. George K. Conant Jr.
Mrs. Melville Dunkelman
Mr. and Mrs. Norman W. Halls
Mr. and Mrs. Samuel M. Kennard III
Mrs. William M. Love
Mr. and Mrs. Hugh McPheeters
Mrs. John C. Tobin Jr.
Mrs. L. O'Barr
Mr. Joseph Gelber
Mrs. Jane Lending
Mr. T. Kenneth O'Connor
Mr. Donald H. Bergmann
Mrs. Thomas O'Leary
Mr. and Mrs. Charles W. Freeman
Mr. and Mrs. Robert E. Kresko
Mr. and Mrs. Warren M. Shapleigh
Mr. Socrates Orphan
Miss Elizabeth Goltermann
Mrs. Clara Peake
Mr. and Mrs. Dean Garner
Mr. Tony Peterson
Mr. Charles Orner
Mr. Kenneth R. Pickard
Ms. Janet K. Powell
Mr. Alwin J. Ploudre
Mr. and Mrs. Gary S. Steffens
Mr. and Mrs. Oscar C. Steffens
Robert Purk's Mother
Mr. and Mrs. Ronald A. Knopfel
Mr. and Mrs. J. D. Robb
Mrs. Jean-Jacques Carnal
Mr. and Mrs. Charles F. Limberg
Mr. and Mrs. Frank A. Thompson Jr.
Mrs. Della Roberson
Mr. and Mrs. Henry Ordower
Mrs. Mary Alice Rodriquez
Ms. Janelle Evans
Mary Watson Roos
Mr. and Mrs. William R. Hostetler
Mr. and Mrs. Boyd Rogers
Mrs. Irene Ross
Mr. and Mrs. Clayton A. Pratt
Mrs. Arnold Roth
Mr. and Mrs. Donald W. Barnard
Mrs. Peggy Beard
Mr. and Mrs. Robert G. Brady
Miss Willetta Comer
Mrs. Wesley H. Green
Mr. and Mrs. Chester P. Hoevel
Mr. and Mrs. Lloyd E. Kuhnmuench
Mr. and Mrs. Thomas W. Phillips
Mr. and Mrs. Floyd W. Wright
Dr. Joseph Roy
Mrs. Joseph A. Richardson
Mrs. Marion E. Sanford
Mr. and Mrs. Leonard R. Kantor
Lillian Sarner
Ms. Lynn Plotkin
Mr. Joseph Schainker
Mr. and Mrs. Larry S. Craven
Mrs. Henry Schemmer
Mr. and Mrs. John J. Reed
Mr. Vernon Schenkel
Mr. and Mrs. Peter E. Sargent
Miss Bernice Schmidt
Mr. and Mrs. Walter F. Helfrich
Mrs. Regina Schmuckler
Mr. and Mrs. Richard Halpern
Mrs. Verna E. Key
Mr. and Mrs. Donald P. Nies
Peggy Schrage's Father
Mr. and Mrs. I. H. Breslauer
Mrs. Ruth Seckel
Mrs. William J. Beezley
Mr. Julius Seiler
Mrs. Harry L. Knopf
Mrs. Bunny Shelton
Joanna Collins
Mr. and Mrs. William R. Hostetler
Mrs. Sydney Shoenberg Jr.
Mr. and Mrs. C. E. Letts
Ms. Lynn Plotkin
Mr. Harold M. Stuhl
Mr. Frank Siedhoff
Mr. and Mrs. Charles E. Buettner
Mr. Charles M. Skinner II
Mrs. George W. Skinner
Mr. George W. Skinner
Mr. and Mrs. Hugh McPheeters
Dr. Samuel D. Soule
Mrs. Samuel D. Soule
Mrs. Mary Lawrence Eaton Spivy
Mrs. Leicester B. Faust
Mr. Harry E. Wuertenbaecher Jr.
Mr. Herman Stern
Ms. Lynn Plotkin
Dr. Julian A. Steyermark
Mr. Arthur Christ
MWSC Biology Club
MWSC Tri-Beta Chapter
Mrs. Robert P. Stupp
Mr. and Mrs. John J. Shillington Jr.
Mrs. Lillie Swagerty
Mr. and Mrs. Howard G. Dissly
Sen. Stuart Symington
Mr. and Mrs. John G. Goessling
Mrs. Sadano Taketa
Mr. and Mrs. M. Kuraoka
Mr. and Mrs. Harry Nabeshima
Mr. and Mrs. Y. Nishimura
Mrs. Estelle Talbot
Mr. and Mrs. Bo Axelrod
Norman W. Cordes Family
Ginny Epstein
Jay Epstein
Mr. and Mrs. Albert Kuhn
Mrs. H. M. Thill
Alma Winkler
Philip H. Theopold
Mrs. James S. McDonnell Jr.
Mrs. Raoul Pantaleoni
Mr. and Mrs. Nicholas P. Veeder
Father, Father-in-Law of Dr. and Mrs. Ron Triplett
Jack Anselh and Family
Mrs. Thomas P. Tyler
Mr. and Mrs. E. J. Gildehaus
Mr. Ronald Dale Umfleet
Mr. Jerry Eastman
Dr. Philip Vierheller
Mr. and Mrs. Elmer G. Kiefer
Mrs. Wilhemina Voss
Bernice Kranson
Mandlman Family
Mr. Thomas Wagner
Mrs. Richard S. Bull
Mrs. R. W. Chubb
Mrs. Terry E. Schnuck
Mrs. Samuel D. Soule
Carol Washburn's Mother
Miss Justine Maier
Mrs. Weiner
Mr. and Mrs. Richard Laitman
Ermina Weisbrod
Mr. and Mrs. Clyde E. Weisbrod
Mr. and Mrs. Clyde R. Weisbrod
Mr. and Mrs. Mark A. Weisbrod
Miss Lorraine Wilker
Miss Arlie Wolter
Mabel Phillips Williams
Mr. and Mrs. William T. Dooley Jr.
Mr. William L. Wilson
Mrs. Edward Fredrickson
Rob Wolf
Joanne T. Stefacek
Mr. Fred Worstell
Mr. and Mrs. Charles A. Rutledge
Mr. Jay Zimmerman
Mr. and Mrs. Lester R. Adelson
Mr. and Mrs. Myron Glassberg
Mr. Ted Zimmerman
Mr. and Mrs. Phillip Schreiber

Board of Trustees

Mr. Robert E. Kresko
President
Dr. Marguerite Ross Barnett
Rev. Lawrence Biondi, S.J.
Mr. Gerald D. Blatherwick
Mr. Stephen F. Brauer
Mr. William H. T. Bush
Mr. Jules D. Campbell
Dr. William H. Danforth
Mr. Samuel B. Hayes
Mr. Robert R. Hermann
Rt. Rev. William A. Jones, Jr.
Mr. David W. Kemper
Mr. Charles F. Knight
Mr. William E. Maritz
Mr. James S. McDonnell III
The Hon. Gene McNary
Mr. Lucius B. Morse III
Mrs. Fred A. Oberheide
Mr. William R. Orthwein, Jr.
Mrs. Vernon W. Piper
Mrs. Lucianna Gladney Ross
Dr. Howard A. Schneiderman
The Hon. Vincent C. Schoemehl, Jr.
Mr. Sydney M. Shoenberg, Jr.
Mr. C. C. Johnson Spink
Mrs. Walter G. Stern
Mr. Andrew C. Taylor
Dr. Joyce M. Thomas
Mr. John K. Wallace, Jr.
Mr. O. Sage Wightman III

EMERITUS TRUSTEES
Mr. Howard F. Baer
Mr. Clarence C. Barksdale
Mr. Joseph H. Bascom
Mr. John H. Biggs
Mr. Sam'l C. Davis
Dr. Thomas S. Hall
Mr. Henry Hitchcock
Mrs. Anne L. Lehmann
Mr. Joseph F. Ruwitch
Mr. Louis S. Sachs
Mr. Daniel L. Schlafly
Mr. Warren M. Shapleigh
Mr. Robert Brookings Smith
Mr. Tom K. Smith, Jr.
Mrs. Harriet Spoehrer
Mr. Harry E. Wuertenbaecher, Jr.

MEMBERS' BOARD
Mrs. Henry W. Dubinsky
President
Mrs. Rudyard K. Rapp
First vice president
Mrs. Antonio I. Longrais
Second vice president
Mrs. Robert J. Senkosky
Secretary
Mr. Frederick H. Atwood III
Treasurer

DIRECTOR
Dr. Peter H. Raven

GRAND OPENING

EXPANDED
GARDEN GATE SHOP

In May the Garden Gate Shop will open its new, expanded facilities. An area adjoining the existing Shop has been completely remodeled to showcase the Shop's expanded book section, with 1,000 square feet of floor space.

The Garden has long been known as the finest source of gardening books in the Midwest, and the new space will display an even larger collection, including books for children, titles on conservation and ecology, educational videos, prints and posters.

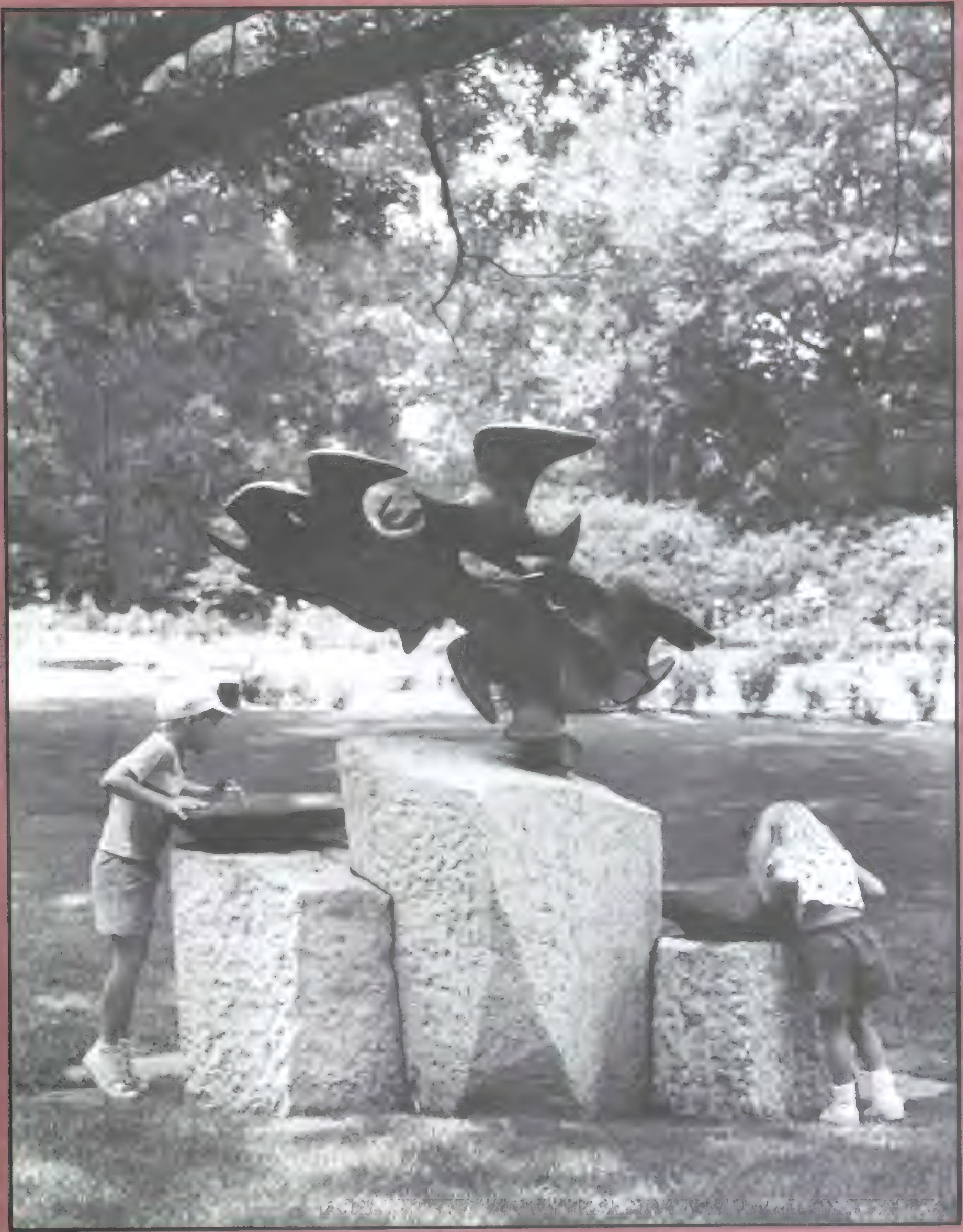
MISSOURI BOTANICAL GARDEN BULLETIN (ISSN-0026-6507)
P.O. Box 299
Saint Louis, Missouri 63166

SECOND CLASS
POSTAGE
PAID
AT ST. LOUIS, MO

CENTENNIAL
Board of Trustees
1889 1989
Missouri Botanical Garden

Missouri Botanical Garden Bulletin

JULY / AUGUST 1989



VOLUME LXXVII
NUMBER FOUR

Inside This Issue

4 **Charles W. Orner**
A memorial to the Garden's late Controller.

5 **School Partnership Program**
The Education Division reaches out to the community.

6 **History of the Board of Trustees**
Part Three: 1970-1989. The transition to a world class institution.

9 **Home Gardening**
Daylilies are a delight for every garden.

10 **Plants at the Garden**
News from the Center for Plant Conservation, and a profile of its director, George Rogers.

12 **Calendar of Events**
Henry Shaw's Birthday, the Japanese Festival, and special events just for kids.

14 **From the Membership Office**
Bobby Short plays a return engagement at the Centennial Gala.

16 **Ask the Answer Service**
It's mid-summer and everything is blooming. Or is it?

19 **Sansevieria Collection Received**
The world's finest sansevieria collection is donated to the Garden.

21 **Tributes**

On the cover: "Birds In Flight," by Robert Lee Walker, offers refreshment to body and spirit.
—Photo by Richard Benkof

© 1989 Missouri Botanical Garden.

The BULLETIN (ISSN 0026-6507) is published bi-monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, MO 63110. Second class postage paid at St. Louis, MO. Subscription price $12.00 per year. $15.00 foreign.

The BULLETIN is sent to every Member of the Garden as one of the benefits of membership. For a contribution of as little as $40 per year, Members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and for course fees; and the opportunity to travel, domestic and abroad, with other Members. For information, please call (314) 577-5100.

Postmaster: send address changes to Susan Wooleyhan, editor, BULLETIN, P.O. Box 299, St. Louis, MO 63166.

Comment

A Summer of Celebration

Traditionally each July the Garden celebrates Henry Shaw's Birthday, and during this centennial year the party takes on great significance. Members will be invited to picnic on the grounds and to celebrate the success of the Garden over the past 100 years.

The Fannie May Candies Foundation, in close partnership with the Garden for the fourth year, will be sponsoring the Fifteenth Annual Japanese Festival opening on August 26. With their fine support and cooperation, the Garden has graced the metropolitan area with magnificent displays of Japanese cultural activities, and this year's plans hold great promise.

It is time, again, to celebrate our membership growth. This spring, Garden memberships exceeded 24,000. Such good news during the centennial year suggests a celebration, and that is exactly what our Trustees and Members' Board are planning. On September 9, under the capable direction of Garden Trustees Nora Stern and Andrew Taylor, the Garden will host its second major benefit during the last six years with New York's celebrity pianist Bobby Short. Every Member will receive a personal invitation soon. (See Page 14).

Members are and always have been the lifeblood of this organization. Support today is unprecedented and visitors continue to join. Within the next year the Garden, along with other cultural institutions, will be approaching the voters for a property tax increase. I am asking now for your assistance and guidance regarding this effort. In 1983, when the Garden first joined the Zoo-Museum District, our Members were there to provide the volunteer assistance so critical to any successful campaign. On behalf of the Garden's Board of Trustees and its staff, I want to thank the Members personally for their dedicated and continued backing of the Garden. It is because of our phenomenal membership that this institution has become one of the finest in the world. The future support of our Members will allow us to move through the 1990s with improved environmental education, research, and horticulture programs.

Thank you.

Peter H. Raven

***VOLUNTEERS HONORED:** At a luncheon on May 2, 1989, the Garden honored a group of volunteers for their long and outstanding service. Standing, left to right: Bill Phillips, 10 years; John Brown, 20 years; Joyce Driemeyer, 20 years; Marion Dorffi, 10 years; Peter H. Raven, director; Nancy Thompson, 10 years; Josephine Goelzhauser, 20 years; Ray Pienaar, 10 years. Seated, left to right: Jeanne McGilligan, volunteer coordinator; Jean Wrisley, 20 years; Virginia Appel, 20 years; Albert Edmondson, 10 years; Vernetta Skiles, 10 years.*

JUN
GARDEN LIBRARY

The
CAMPAIGN
for the Garden

Campaign Tops $15 Million

UPDATE: As of June 1, 1989 the Garden's $16 million capital campaign has raised $15,005,511 in gifts and pledges.

ON the evening of May 31, close friends of the Garden gathered to celebrate the completion of the second year of community fund raising for the capital campaign. In brief remarks during the event, Campaign Chairman Robert E. Kresko announced more than $14.9 million raised thanks to donors' and volunteers' generous contributions of money and time. The next morning, a substantial pledge arrived in the mail to take the campaign past $15 million.

"It was the perfect way to top a wonderful party," noted Kresko. "I'm particularly delighted that this gift came from one of the descendants of Robert S. Brookings, one of St. Louis' most revered philanthropists. It has been designated as part of a family commitment to name the new Interpretive Center on the Tropics in Brookings' memory."

In remarks at the May 31 celebration, Dr. Peter Raven, the Garden's Director, summarized the impetus driving the campaign: "It is just one part of our plan for new investments in the Garden's ability to serve the public.... As we approach the 21st century we are determined to continue our role as an institution involved with and concerned about our community and our planet."

(From left): Mrs. Sears Lehmann, Mrs. Landon Jones, Rick Dickinson, Ms. Rosemary Menke, Mrs. John Lehmann, Landon Jones

(From left): Jules Campbell, Mrs. Hermann Spoehrer, Mr. and Mrs. Robert Tschudy

(From left): Mrs. Lucius Morse, Mr. and Mrs. Charles Roland, Mrs. Peter Raven, Mrs. Stephen Brauer, Mr. and Mrs. Henry Dubinsky

(From left): Robert Kresko, Andrew Love, Peter Raven

(From left): Sydney Shoenberg, Mrs. Francis Corley, Marshall Crosby

IN MEMORIAM

Charles W. Orner

1926–1989

Charles W. Orner, controller and secretary to the Board of Trustees of the Garden, died suddenly at his home on Sunday, April 30, 1989. He was 62.

Mr. Orner was born in Jamesville, Wisconsin on August 9, 1926. Raised in St. Louis County, he graduated from Ritenour High School in St. Louis in 1943, and earned his Bachelor of Science-Commerce degree from St. Louis University in 1950. He came to the Garden in 1973. He is survived by his brother, James B. Orner, of San Francisco.

In tribute to Mr. Orner's memory, friends, associates, Garden staff and Trustees attended a memorial service held at the Garden on Monday, May 8, 1989. Personal appreciation and remembrances were shared by Frank Wolff, Attorney for the Garden; Paul Brockmann, director of maintenance at the Garden; Father Donald Dyer, a close friend; and Walter G. Stern, Chairman of the Botanical Garden Subdistrict. Dr. Peter H. Raven gave the eulogy.

"Charlie's concern went beyond day-to-day fiscal affairs and encompassed everything and everyone associated with the Garden," Raven said. "He helped guide the Garden through a period of unparalleled growth and development, including capital campaigns, tax district support, the building of the Japanese Garden and Ridgway Center. In meeting these challenges we always knew we could rely on Charlie's invaluable advice and absolute integrity; he could be trusted to tell the truth, good or bad. He was a great friend, and we will miss him."

Walter Stern agreed: "I was always impressed with Charlie's thorough and complete knowledge of any area of the Garden that was discussed. His untiring efforts and love of the institution provided an inspiration for all of us to perform above and beyond the call of duty."

Orner's tireless efforts for others often went unremarked, for he was a self-effacing man. "There were many kind and generous deeds Charlie did for others that were generally unknown, because that was the way he preferred it," said Paul Brockmann. "Underneath the gruff exterior of the boss was a compassionate, concerned man.

Charlie had a lifelong love for sports," Brockmann continued. "He was an outstanding third baseman who was selected for all-metro and all-state teams in high school. He played legion and college baseball and was invited to tryout for the St. Louis Cardinals." In later years Orner developed a passionate enthusiasm for golf, and spent many weekends playing a round with his friends, Father Dyer recalled. Orner was a member of the Normandy Country Club.

"Charlie Orner didn't have a green thumb, but he made the Garden grow," said Frank Wolff. "He was a wonderful teacher, a rock of stability, and his life made a lasting imprint on those of us who knew him. His legacy is one of commitment and dedication and loyalty. He enriched us all, but, most of all, in his quiet way he enriched the Missouri Botanical Garden and helped make it the special place we all love."

Tropical Rain Forests Summer Workshop for Teachers

The Garden is offering a summer workshop on the nature and value of tropical rain forests, the social and economic factors contributing to their destruction, and the methods for their preservation. The course will be held at the Garden, July 17-28, in ten sessions from 9 a.m. to noon.

The course is designed to prepare teachers of grades K-12 to teach about deforestation in their classrooms and will provide them with materials, strategies and resources. Two graduate or undergraduate credit hours in biology or education from the University of Missouri-St. Louis will be awarded upon completion. Instructors will be Garden staff and area specialists.

The workshop will correlate with the upcoming Smithsonian Institution Traveling Exhibition Service (SITE) exhibit, "Tropical Rain Forest: A Disappearing Treasure," which will be in St. Louis July 1-September 23, 1990. Indiana State Museum and Chicago Botanic Garden also will host the exhibition, and Chicago and the Garden are collaborating on the planning for this summer's workshop. The workshop is funded by a grant from the John D. and Katherine T. MacArthur Foundation.

The public is invited to attend a series of lectures offered in conjunction with the course. The five lectures on "Tropical Rain Forest Deforestation" are described in detail in the summer courses brochure mailed to all Members. The lectures may be attended individually or as a series.

For more information call 577-5148.

School Partnership Program

REACHING OUT TO THE COMMUNITY

Under a contract with the St. Louis Public Schools' School Partnership Program, the Garden brings together students from city and county schools in a variety of programs combining study at the Garden with field trips and outdoor activities. Two of the programs, "Global Issues: World Hunger" and "Youth Urban Gardening Project" served more than 1,000 students this spring. Miguela Fry is the Garden's coordinator for the program.

Global Issues: World Hunger

Rarely do students have the opportunity to visit a research institution to learn about soil erosion and world hunger, then visit a farm to do soil testing, see a bull up close, and learn about the benefits and aroma of fresh cow manure. Two hundred students from seven high schools shared these experiences through the School Partnership Global Issues World Hunger program this spring.

After a class session at the Garden, the students visited Jack and Betty Broemmelsiek's 550-acre Spring Lake Farm in Defiance, Missouri. The Broemmelsieks have been giving students tours of their farm for the last 40 years. Betty compares agriculture in the Nile and Mississippi River valleys, explaining that "in Ethiopia and Egypt grain is so precious, it's sold by the handful." She traces the poverty and hunger in those countries to the depletion of their soil, and warns students about the need for soil conservation.

At the Broemmelsiek farm students participated in activities assisted by representatives of the St. Charles Soil and Water Conservation District. For students who live in the city, it was an opportunity to see life on a working farm and understand the importance of soil to world food production. Students were urged to become involved with the issues of hunger and food supply.

Youth Urban Gardening Project

The 800 students from twelve schools who took part in Youth Urban Gardening hope to reap the fruits of their labors this season when they harvest crops from their school gardens. The program began with workshops to train teachers in gardening basics; then the teachers brought their students to the Garden for a lesson on seeds. The balance of the educational program was carried out by Master Gardeners from the Garden and the University Extension, who visited school classrooms and garden plots.

This program has a very small budget and would not be possible without the support of many community organizations and volunteers. The Gateway to Gardening Association (GTGA), a coalition of public and private organizations involved in land use, neighborhood improvement, and education, assisted with planning and designing the gardens, offered resources and funds, and coordinated the various support agencies. GTGA representatives Pat Ferrell, Cathy Johnson, Maxine Schuler, Kitty Hoblitzelle, Sue Reed, Marit Clark and others made sure that this program was successful. The School Partnership Program honored GTGA for its outstanding support this year.

Master Gardeners from the Garden and University Extension served many hours this year visiting schools. This volunteer spirit is best exemplified in Maxine Schuler, a Master Gardener and GTGA board member who worked tirelessly to coordinate the Urban Gardening project. Master Gardeners Albert Hirson, Lonnie Cunningham, Keith Heerlein, Suze Stark, Helene Holwerda, Frank Enger, Kitty Hoblitzelle, Marcia Carpenter, Joan Merz, Patrick Brown, Sonia Chetta, Al Hoehn and Hazel Cox, and University Extension education assistants Eula Jones and Annette Slaughter, worked with teachers and students tilling, planting, and maintaining the school gardens. The hard work paid off at the Laclede Elementary School "Cabbage Patch" garden, when the National Gardening Association awarded the third and fourth grade students with the Green Metal Award in 1989. At the "Cabbage Patch" students learn mathematics, conservation, environmental issues and cooperative behavior.

A very special thank you is offered to the many individuals who have given so much to help urban children learn about and grow successful gardens.

—Sarah Coppersmith,
Education Consultant

Enviromental Science Course Trains Teachers

The Garden's education division is offering a course titled " Ecology for Teachers: Finding a Niche", for teachers of grades 4 through 8.

The course will consist of seven intensive sessions from October, 1988 through June, 1990, plus an interim project. Thirty teachers will be selected to participate, and will receive stipends plus expenses. The program is sponsored by a grant from the National Science Foundation. Participants will earn four graduate credits in education.

The course will be taught by Garden staff and area educators. For further information and a course application, call Karla Goodman, the Garden's environmental education coordinator, at 577-5134.

At the Brommelsiek farm, Patricia Teroy of the Garden's education staff (right) assists Karen Grimes, of the County Soil and Water Conservation District, in testing a sample of lake water, while students observe.

Photo by L. T. Spence, St. Louis Post-Dispatch

(Above): Formal dedication ceremony for the Japanese Garden, Seiwa-En, May 5, 1977.

(Above right): During their monthly meeting, Trustees tour the Ridgway Center construction site, September 16, 1981.

(Left to right): Director Peter H. Raven, "Henry Shaw," and board president C. C. Johnson Spink officially open the Ridgway Center at 2:00 p.m., July 8, 1982.

CENTENNIAL
Board of Trustees
1889 · 1989
Missouri Botanical Garden

PART THREE/1970-1989

A VISION FULFILLED

BY
Joseph
M.
Schuster

IN DECEMBER 1970, three people dug up a spadeful of earth near the south end of the Missouri Botanical Garden. Many spades had been turned in that ground since Henry Shaw opened the Garden to the public 111 years earlier, but this would turn out to be one of the most significant developments of all.

The three people were Garden director David M. Gates, board president C. Powell Whitehead, and Anne L. Lehmann, widow of former board president John S. Lehmann.

Henry Shaw had opened his Garden in 1859 and, in 1889, left it to a Board of Trustees to maintain forever as a public garden. In the subsequent years, 53 dedicated men had guided the Garden through two world wars and the Depression to arrive at this point, December 2, 1970.

What the woman and two men were doing was breaking ground for a new building, only the second major development at the Garden in more than half a century. (The other was the Climatron, built 10 years earlier.) This building would be a center for the Garden's education and research programs and would be named the John S. Lehmann Building in honor of Mrs. Lehmann's late husband. The construction of the building would turn out to be significant for a number of reasons.

First, it came following the successful completion of a massive $3 million capital fund drive, the first such drive in Garden history. The Trustees had sought public contributions earlier in the Garden's history and had raised thousands of dollars, most notably for the opening of the Arboretum in 1939, for the restoration of Tower Grove House in the early 1950s, and for the construction of the Climatron at the end of that decade. (Half of that sum had come from the Trustees themselves.) But never before had people responded in such a resounding manner as they had in supporting the capital fund drive. More than 1,400 individuals and corporations contributed more than $3 million; the National Science Foundation added another $600,000.

Second, the construction of the Lehmann Building was significant because it would come to stand as a benchmark in the Garden's history. Before 1970, the Trustees had managed to bring the Garden's finances into line, operating the last few years of the 1960s with a balanced budget. The education and research programs had grown sufficiently that a new building to house them had become a necessity. But the Garden after 1970 was to be a world class institution. Within the next two decades, its face would change more than it had in the previous century.

Several factors contributed to the enormous growth. In 1971, even before the Lehmann Building was completed, Gates resigned as director. As his successor, the Trustees chose a 34-year-old botanist from California named Peter H. Raven. Despite his youth, Raven came highly recommended. Henry Hitchcock recalled later that one of Raven's professors said that Raven had done more scientific work in the first few years after receiving his Ph.D. than most botanists did in a lifetime. Whitehead told the press, after Raven's appointment, that the new director was "a brilliant young botanist who is well-known for his contribution to scientific scholarship and research."

The Trustees were looking for a director with ideas, someone who could understand where they wanted the Garden to go, and who could take it there.

And Raven had ideas.

Within the first two years he held the post, Raven and the Trustees developed a sweeping Master Plan for the Garden, an ambitious plan that called for new outdoor displays and a new multipurpose facility. The first decade of the Plan would be carried out under the leadership of four dedicated board presidents—Whitehead, who served until 1973; Joseph H. Bascom (1973-75), Tom K. Smith, Jr. (1975-81) and C.C. Johnson Spink (1981-84). Under the Plan, the English Woodland Garden was finished in 1976 in commemoration of the American Bicentennial. The next year the rose garden named for Anne L. Lehmann was dedicated and the 14-acre Japanese Garden, *Seiwa-En*, was opened. The Japanese ambassador to the United States would later call it the finest outside his native Japan.

In August of 1977, the Trustees launched a capital fund drive to raise money for what would become the Ridgway Center, a facility that would unify many of the Garden's public programs and services. It would be a visitors' center, and would house the education program and a floral display hall.

In the midst of the heady success, however, misfortune struck. In November of 1977, a grease fire started in the kitchen of the 63-year-old Floral Display House during the annual chrysanthemum show. The building was ruined and more than $35,000 worth of plants were destroyed. For the first time, the show had to close early.

But the fire was one of only a very few setbacks. The Trustees continued their work to help the Garden develop.

In 1981, for example, they received permission from the St. Louis Circuit Court to restructure the board. The developments of the last ten years were taking the Garden into the future; the board decided it needed to do the same for itself. As then-president C.C. Johnson Spink said, "Things have changed dramatically since the Garden was a half-day's ride (from the city) on horse-back. The world of Henry Shaw is not the world of . . . 1981."

The Trustees expanded the board, adding ten new members. They also added a new *ex officio* Trustee, the president of St. Louis University, who would join the five *ex officio* Trustees appointed by Shaw's will. The board also received permission to make changes in the manner in which it managed the Garden, allowing the Trustees to use accepted contemporary business practices.

The following year, 1982, the Trustees closed out a successful capital fund drive with the opening of the Ridgway Center and several adjacent outdoor gardens.

With that accomplished, the Trustees turned their attention to acquiring a broad and substantial source of funding; they looked toward the Zoo-Museum District.

There was no question that the Garden needed the money. Shaw's endowment had long ago ceased to be anywhere near sufficient to support the Garden. While contributions had increased, and the number of Garden members was continuing to grow, it was still not enough, especially now that the Garden was serving more St. Louisans than ever before in its history. Without some form of permanent support like that which would come from the tax district, the Trustees anticipated that, within five years, the Garden would be in the red by $6 million.

Official support for the Garden's proposal to enter the district was solid. The mayor of St. Louis and the St. Louis County Executive campaigned for it, and the *Post-Dispatch* editorialized for it, asking readers, "How does one quantify for taxpayers . . . the appreciation of the environment that a visitor to (the) Garden comes away with?"

And voters responded; on April 3, 1983, the Garden won its campaign. With a base of support in hand, the Trustees set out to give to the people of St. Louis all the services the voters had so generously funded.

Under a new board president, John H. Biggs, the Garden's programs expanded rapidly. In education alone, the numbers are staggering. In 1980, 39,000 students went through Garden classes; last year, the Garden served more than 106,000 students. In addition, the number of Garden members has doubled, growing from 12,000 early in the decade to 24,000 in the spring of 1989.

The Garden has dramatically increased its number of displays, lectures and other special events. There are now monthly Members' Days and even a junior members' organization, the MoBot Club.

Visitors to the Garden increased from 330,000 people in 1980, to nearly 715,000 last year. Admission is now free on Wednesday and Saturday mornings, and at all times for children under 12. In 1988, nearly 45 percent of all visitors to the Garden (including Members) attended free of charge.

The scientific programs also continued to prosper. Seventy-five years ago, the Trustees had parted company with director William Trelease, because they felt he could not balance the scientific and horticultural functions of the Garden. But with Raven, they seemed to have someone who could. At the same time the Garden was regaining glory for its displays, it was expanding its botanical research. In 1971, there were three staff members with Ph.D.s; today, there are more than 40. While the herbarium stood at 2.4 million specimens in 1971, today it contains more than 3.5 million, a phenomenal leap, considering that it took nearly 40 years (1932 to 1970) to grow from 1 million to 2 million.

These accomplishments stand as a tribute to the diligence and dedication of the men and women who have served as Trustees over the last 20 years, and to those who came before them.

When Henry Shaw left his Garden to the people of St. Louis, the St. Louis *Republic* remarked that Shaw had erected a monument to himself, "not in brass or marble . . . but in the hearts of a grateful people."

In much the same way, the Garden today stands as a monument to the Trustees who followed Shaw, accepted his legacy, maintained it, and helped it to grow beyond what even Shaw might have dreamed or hoped. Now on the threshold of a new decade, with a new board president—Robert E. Kresko, who succeeded Biggs this year—the Garden is a premier botanical institution, poised for the future.

As Henry Hitchcock once said, "I just regret . . . Shaw couldn't pop down here and look it over." ■

Joseph M. Schuster is a freelance writer and lives in St. Louis. He is a former editor of the Bulletin.

Debt Converted to Funds for Conservation in Ecuador

In the largest debt-for-nature transaction to date, the Garden will gain funding for botanical research in Ecuador. The swap, a collaboration between the Missouri Botanical Garden, the World Wildlife Fund and The Nature Conservancy, will deliver $9 million to Ecuador's conservation community, the largest sum ever generated from such a transaction.

In addition to the size of the deal, this transaction is unique because it features a one-to-one conversion of debt to conservation funds, and it includes for the first time a scientific research organization, the Missouri Botanical Garden.

The debt-swap-for-nature is a relatively new concept, first implemented in 1987. In this instance, Ecuador owes $9 million to three financial institutions, American Express Bank, Morgan Guaranty Trust Company, and Bankers' Trust. The three conservation organizations put up a total of $1,068,750 to purchase that $9 million debt. The Garden's share of the package is $50,000 to purchase $400,000 of debt.

The $9 million will be converted to local Ecuadorian currency bonds that bear interest for a period of eight years. That interest then will be returned to the conservation groups, and they will reinvest the interest in Ecuador through conservation and scientific programs.

"It is a win-win situation for everyone," according to Enrique Forero, director of research for the Garden. "The banks recover more than $1 million of their bad debt. The Ecuadorians benefit by having their payments reduced for a period of eight years, and then the debt is gone. Additionally, Ecuador benefits by having the funds reinvested positively in their country. The Garden will have interest income to support its research in Ecuador."

Forero said, "The Garden anticipates its investment of $50,000 will yield $64,000 in interest in about six months time."

Ecuador, about the size of Colorado, has a concentration of biological diversity unequalled in the world. There is an estimated 20-25,000 plant species, as compared with 17,000 in all of North America. The tropical rain forests and other habitats in Ecuador are considered among the world's highest priorities for protection, and include two of ten "hot spots" recently recognized by conservationists.

Since the 1970s, the Garden has been active in studying the plants of Ecuador and currently has two staff scientists residing there. The funds from the debt swap program will be used to hire additional Ecuadorian and North American field researchers, support local botanical institutions and scientists, develop training programs for Ecuadorian biologists and students, purchase equipment, publish botanical findings from the program, provide administrative services, and support the Jatun Sacha Biological Station and the Rio Palenque Science Center, both associated with the Garden's program in Ecuador.

Congress of Botanic Gardens

(Left to right): Porter P. Lowry II, coordinator of the Garden's Madagascar program; Voara Randrianasolo, Head of Natural History, Parc de Tsimbazaza, Madagascar; Enrique Forero; George Schatz, the Garden's resident botanist in Madagascar; and Jacky Andriantiana, horticulturist, Parc de Tsimbazaza.

The Second International Botanic Gardens Conservation Congress, organized by the International Union for Conservation of Nature and Natural Resources (IUCN), was held April 24-28, 1989 on the island of Réunion in the Indian Ocean. Nearly 200 scientists representing 25 countries attended. The Garden, with the largest delegation from the United States, was represented by Enrique Forero, director of research, and by Porter P. Lowry II and George E. Schatz, scientists in charge of the Garden's program in Madagascar.

Considerable progress has been achieved since the first Congress of Botanic Gardens and Conservation was held in the Canary Islands in 1985. Delegates were able to present results of programs undertaken in response to the conservation strategies adopted in 1985.

Forero delivered a lecture describing the important role that South American botanical gardens can play in conservation, research and education. He emphasized the need for greater cooperation at the national, regional and international levels to provide the technical and financial support these gardens need.

Forero also was elected Chairman of the session on Botanical Gardens in the Tropics, and Chairman of the Resolutions Committee.

The Garden's leadership in conservation issues was recognized by participants at the congress in various ways. For instance, the collaboration between the Garden and the Parc de Tsimbazaza in Madagascar was mentioned repeatedly as an example of cooperation between botanical gardens in developed and developing countries. (See the *Bulletin*, March-April 1989, page 11.) The Garden's support of the new network of botanical gardens in Colombia was emphasized by Hermes Cuadros, the network's coordinator. In addition, Lowry was appointed to the Scientific Advisory Council of the Mascarin Botanic Garden on the island of Réunion.

continued on next page

H·O·M·E GARDENING

DAYLILIES

by Robert E. Bowden

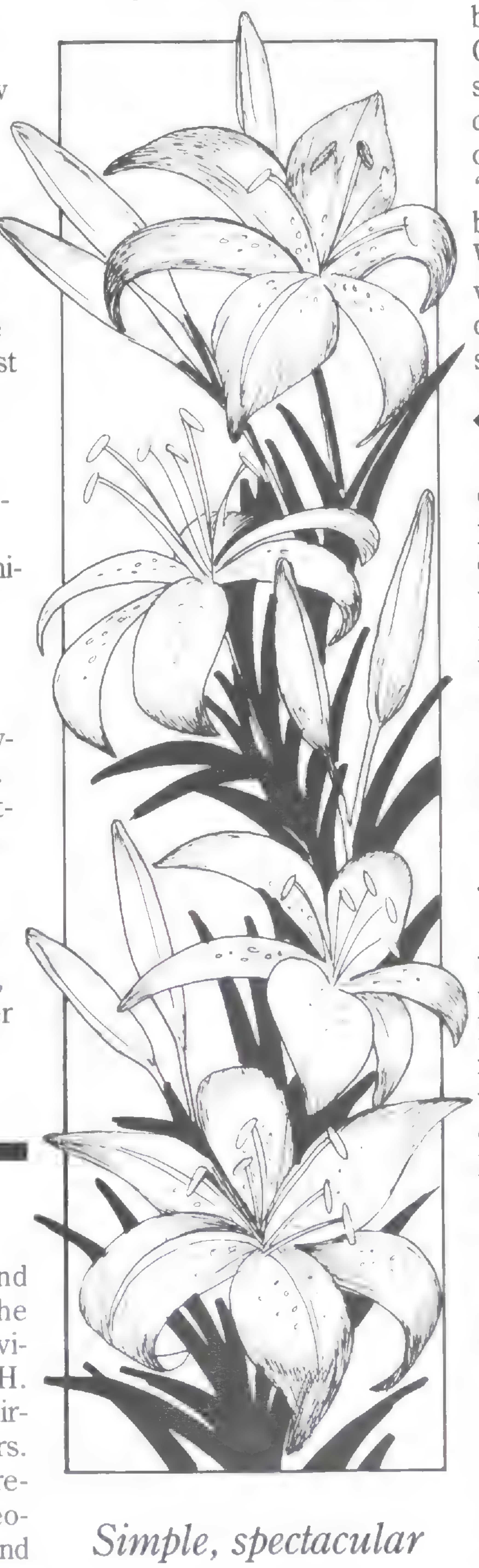
Any gardener would enjoy having a plant that blooms in the late spring and early summer, needs little water or fertilizer, rarely has pests, and boasts colors ranging the spectrum of the rainbow. Daylilies, *Hemerocallis*, fit the bill, and as Graham Stuart Thomas said in his introduction to A.B. Stout's *Daylilies*, "...few perennial plants have so many advantages for the gardener".

◆ ADVANTAGES

The advantages are truly many. If one has a spot in the garden with at least five hours of sun, one has a place for a daylily. Colors range from nearly white ('Ice Carnival') to the deepest of reds ('Hey There') to delicate peach ('Walt Disney'), and of course to yellow ('Stella de Oro'). In addition to the broad range of petal colors, many daylilies have contrasting or complementary "hearts" of various colors and "diamond dusting", a delicate sprinkling of luminescence found on many of the finer hydrids' flower petals.

◆ HEIGHT

Varying heights are another trait of the daylily genus that make it attractive to gardeners. 'Stella de Oro', mentioned above for its delightful light yellow color, is extraordinary because of its twelve-inch maximum height. The clusters of flowers also bloom over a long period, making it an exceptional plant for the garden border. 'Hyperion', another soft yellow daylily, is known best for its ability to soar above other daylilies with its forty-inch ultimate bloom height.



Simple, spectacular and easy to grow.

Daylilies also bloom at various periods of the season depending on the species or cultivar. Several species such as *Hemerocallis middendorfii*, *H. minor*, and *H. dumortieri* bloom before or simultaneously with German iris. Others, such as 'Boast' (a very large and showy light peach flower, very ruffled and creped) and 'Oil Painting' (an excellent flower of peach, cream, and orchid above a green "heart") bloom very late in the season. The blossoms of daylilies can also be fragrant ('Irish Whim') and flat or recurved (petals curve backward) such as 'July Gold'. Several cultivars of daylilies repeat bloom during the growing season ('Apricot Snow' and 'Mercy Me').

◆ PLANTING

Planting daylilies couldn't be easier. After digging a hole and incorporating enough compost, place a small mound of soil in the center of the hole and set the plant on the mound with the roots extended out and down. Fill the remaining hole with good composted soil, firm up, and water heavily. The plants should be set so that the joint where the roots and leaves meet is at ground level. Mulch well to conserve soil moisture. Dividing, planting and resetting should be done as soon as the ground can be worked.

◆ CARE

General care for daylilies is simple. Tilling the soil surrounding the plants to destroy weeds will encourage a well-groomed look. Flower stalks should be removed after flowering. Dead or dying leaves should be removed as well. Ordinarily, daylilies are free of pests and diseases. Occasionally leaf spot may be a problem, in which case an application of Bordeaux mix is somewhat helpful. If thrips are seen, an appropriate spray might be necessary. Keep in mind, however, that these problems are uncommon and should not discourage one from growing daylilies.

To join the American Hemerocallis Society, an international organization of friendly amateur and professional gardeners, commercial growers, and educational institutions interested in daylilies, contact: American Hemerocallis Society, Ms. Elly Launius, 1454 Rebel Drive, Jackson, MS 39211.

You can enjoy a magnificent display of daylilies this summer at the Garden. Visit the G. Stuart Jenkins Daylily Garden and see an extraordinary array of cultivars. ■

CONGRESS OF BOTANIC GARDENS

continued

After the Congress, Forero, Lowry and Schatz attended the annual meeting of the IUCN/World Wildlife Fund (WWF) Plant Advisory Group. Forero is a member, and Peter H. Raven, the Garden's director, is honorary chairman after serving as chairman for four years. Also present at the PAG meeting were representatives from the IUCN, the WWF, the People's Republic of China, Madagascar, Brazil, and England. Dr. Arturo Gómez-Pompa of the University of California, Riverside, the group's current chairman, conducted the meeting. ■

—Enrique Forero, in consultation with Porter P. Lowry and George Schatz.

Plants at the Garden

A Quartet of Imperiled Species

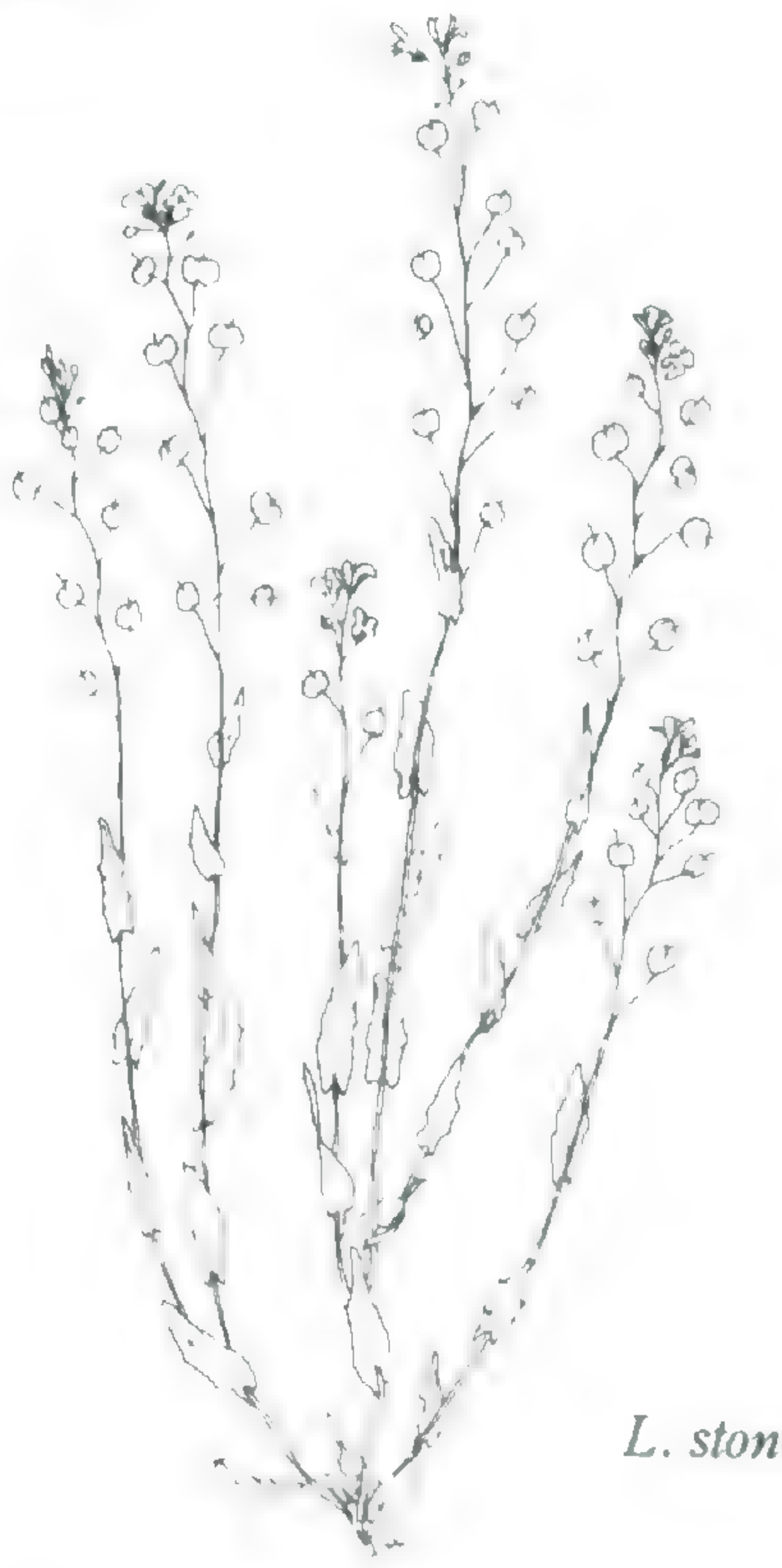
As related in earlier *Bulletins*, the Garden participates in the Center for Plant Conservation (CPC), protectively cultivating plant species threatened with extinction. Curiously, four of the 20 to 30 endangered species in our region belong to just one genus—*Lesquerella*.

Lesquerella is a member of the Mustard Family along with spring wildflowers (such as toothwort), garden beauties (such as candytuft), and dinnertime standards (such as broccoli, cauliflower, cabbage, brussel sprouts, radishes, horseradish, and others). Altogether the family is made up of some 3200 chiefly north temperate herbs having four petals forming a cross, four long stamens, and two short stamens. Called "bladderpods" for their hollow, spherical fruits, lesquerellas account for about 70 predominantly North American species. Their habitats hold the key to the rarity of several species.

Species of *Lesquerella* occupy rocky clearings, glades, and stony banks. These spotty habitats can be envisioned as evolutionary islands, and populations living on them can be self-contained, isolated evolutionary lines, sometimes distinct species. However, when brought together artificially, *Lesquerella* species are readily hybridized. Suppose a road connects the glades occupied by two different *Lesquerella* species and they come together by migrating along the road (road banks make good artificial glades) or by seeds transported in the mud of truck tires. We may then see extinction by melding.

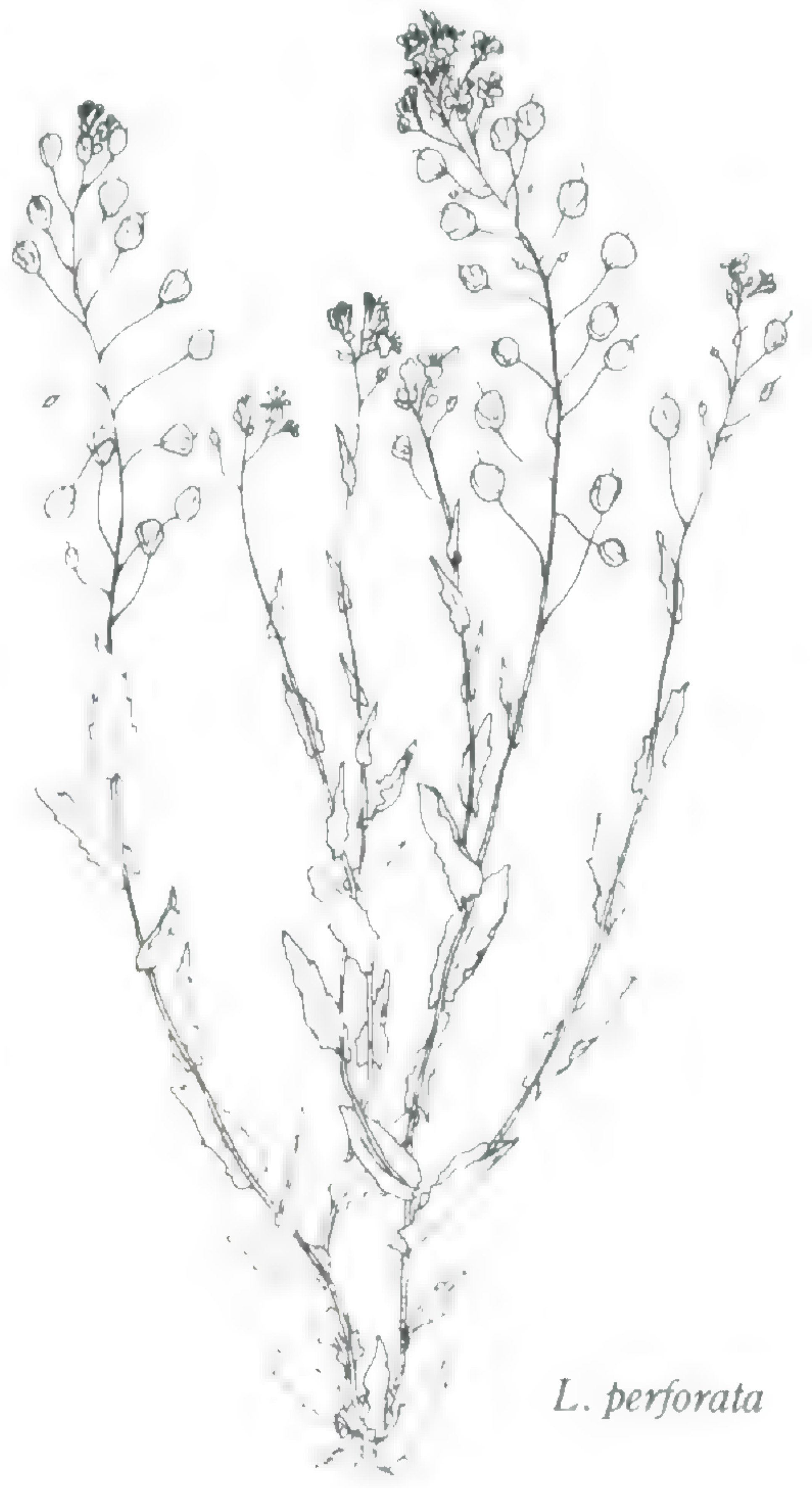
Each of these four species is at one stage or another of receiving protection by the Garden:

Lesquerella globosa (not pictured) is found at a small number of scattered sites, mostly in central Tennessee and central Kentucky. That it is extremely rare is puzzling, since its taste in habitats appears broad—a bluff, the edge of a swamp, a roadside, and a glady pasture. There must be some obscure requirement waiting to be perceived. Also puzzling is a population in Indiana some distance from the others. Is it natural or was it carried there by human activity long ago?



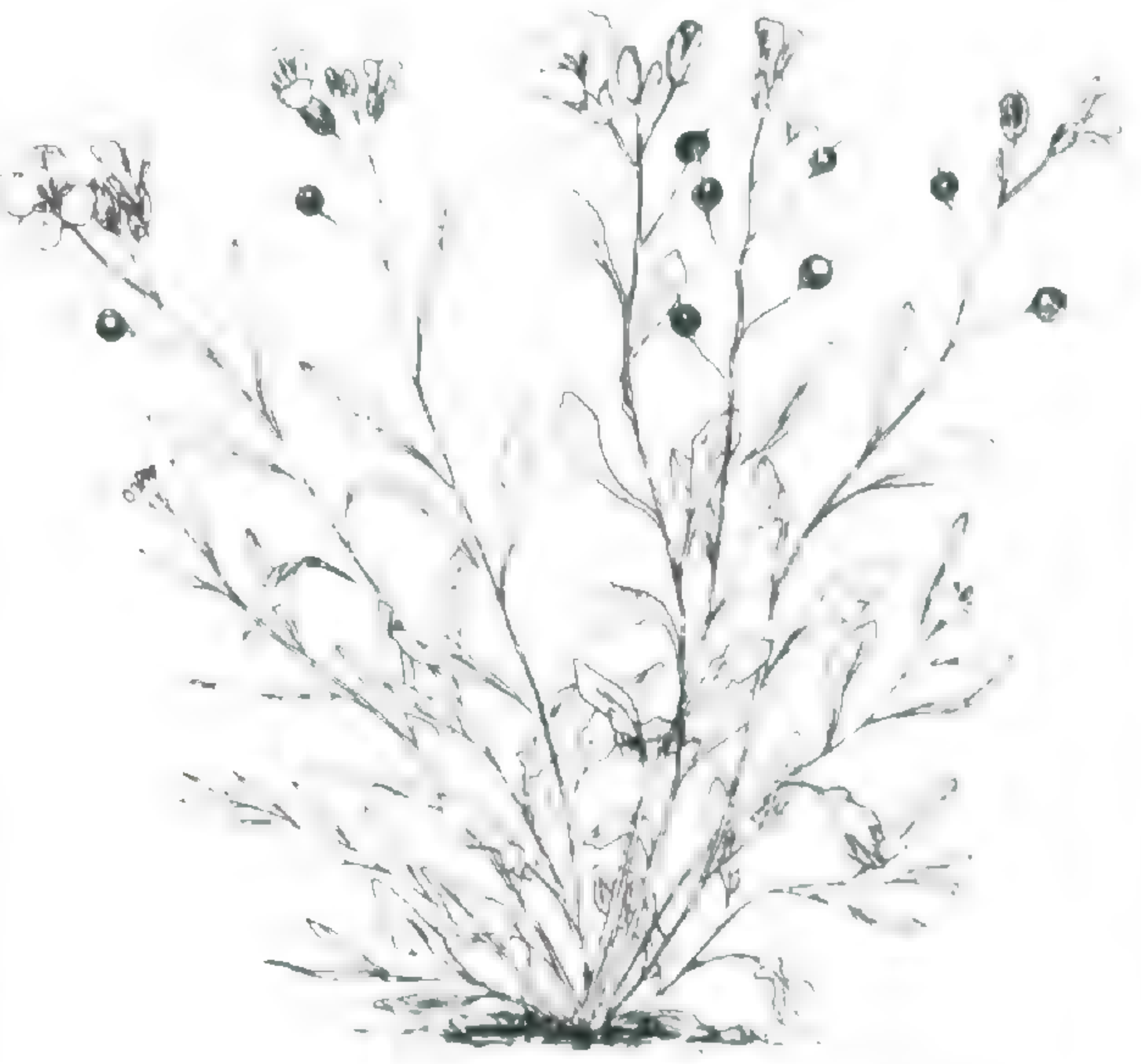
L. stonensis

Lesquerella stonensis is found only in a roadside park and adjacent cultivated land along one fork of a river in Tennessee. A different species, *Lesquerella densipila*, has migrated in modern times along the other fork of the same river. Downstream from the junction of the forks hybrids are found. And not far away, hybrids between *L. stonensis* and yet another species have turned up—undoubtedly resulting from habitat disturbance.



L. perforata

Only a few miles from *Lesquerella stonensis* lives ***Lesquerella perforata***, in (and only in) the outskirts of an expanding little town, where rapid development is the threat.



L. filiformis

Missouri's own ***Lesquerella filiformis*** lives exclusively near Springfield on glades, roadsides, and similar sites. Population levels of this biennial fluctuate dramatically from year to year. One year no populations were observed, another year several dozen were reported.

This all raises questions. What are the pollination requirements of these species? How diverse are they genetically? What are their relationships with each other? What do they require for cultivation? (This has been challenging.) And, mainly, how can we help make certain that their tender populations are not whittled down to a point of no return?

—George Rogers, Ph.D.

The illustrations in this article are the work of Wayne Page, horticultural intern visiting the Garden from the University of Reading in Reading, England. Mr. Page's considerable artistic talents exemplify the contributions our interns make to the Garden during their stay, and we are very grateful for this delightful and unexpected addition to the Bulletin.

Library Volunteer Needed

A volunteer is needed to assist library staff with providing bibliographic information to Frans Stafleu for a supplement to *Taxonomic Literature*, second edition. (See next page.) This project involves locating materials through the card catalog, retrieving them, copying specified parts, and sending them to Dr. Stafleu. The qualified volunteer must be familiar with library searching techniques. For more information, call Jeanne McGilligan at 577-5187.

PROFILE

GEORGE ROGERS

Horticultural Taxonomist

If you have ever enjoyed the delightfully informative signs placed throughout the Garden, you may have wondered who writes them. That someone is George Rogers.

George earned his Ph.D. in botany from the University of Michigan at Ann Arbor in 1981. After serving a four-year stint as a research botanist at Harvard University's Arnold Arboretum, George was lured to the Garden in 1985. As the Garden's horticultural taxonomist he works for two divisions, horticulture and research.

In the horticulture division, George studies botanical aspects of the Garden's living collection—the plants growing on the grounds. His duties include identifying specimens, writing interpretive signs, overseeing the computerized horticultural database, writing the regular feature "Plants at the Garden" for the *Bulletin*, and heading the rare species program (see accompanying article). He admits that the last-mentioned duty is particularly enjoyable "since it requires rambles in the woods in the company of kindred spirits."

George wears a second hat—an editor's eyeshade, since he is also head of the research division's department of scientific publications and editor of the Garden's two prestigious publications for professional botanical research, the *Annals of the Missouri Botanical Garden* and *Monographs in Systematic Botany*. He also provides invaluable technical assistance in editing the *Bulletin* and other Garden publications for the general public.

George lives in Webster Groves with his wife Donna and two sons, Martin and Curtis.

Frans Stafleu (left) receives the Henry Shaw Medal from Robert Kresko.

Henry Shaw Medal to Frans Stafleu

During the recent meeting of the Council for Botanical and Horticultural Libraries, (see below), the Garden's highest award, The Henry Shaw Medal, was presented to Professor Frans A. Stafleu, of the University of Utrecht, the Netherlands. Dr. Stafleu has been engaged in cataloging and describing botanical literature, so important to documenting the kinds of research that is carried out at the Missouri Botanical Garden, for the past forty years.

Stafleu's most important work is the seven-volume *Taxonomic Literature*, edition 2, completed in 1987. This work provides a guide to the most basic literature of botany, containing references to about 18,000 separate publications. During the preparation of this guide, Dr. Stafleu and his collaborator, Richard S. Cowan, then of the Smithsonian Institution, depended heavily on the Garden's library resources as a source of information. During the late 1970s and into the early 1980s, the two authors paid several visits to St. Louis specifically to use the Garden's library and record information about our copies of various books that were to be included in the *Taxonomic Literature* volumes. In addition, they used the collections of Professor Joseph Ewan, then at Tulane University in New Orleans, in their research work. The Garden purchased the Ewan collection in 1986, and it is now housed and available for research workers in the Museum Building.

In his remarks, Robert E. Kresko, President of the Board of Trustees, noted that the kinds of activities in which Dr. Stafleu has been engaged reflect strongly the Garden's mission of accumulating information about plants and disseminating it in useful forms for educational and research purposes.

CBHL Holds Annual Meeting at Garden

The Council on Botanical and Horticultural Libraries (CBHL) held its twentieth annual meeting at the Garden, May 3-5, 1989. CBHL is an international organization of individuals, organizations, and institutions concerned with the development, maintenance, and use of libraries of botanical and horticultural literature. The meeting program, which centered on literature acquisition, included John Flanagan, Royal Botanic Gardens (Kew, England); Yao Bi-jun, Institute of Botany (Beijing, People's Republic of China); and Susan Fugate, National Agricultural Library (Beltsville, Maryland), as well as the Garden's resident natural history historian, Joseph Ewan. The Banquet on Friday provided an extraordinary opportunity for Garden staff and CBHL members to a hear a talk by Frans Stafleu, one of the world's foremost botanical bibliographers. (See story above.)

JULY IS "FOR KIDS' SAKE" MONTH

The Garden teams up with KMOV-TV, Channel 4, to present events especially for children. Also sponsored by Union Electric, Dierberg's, McDonalds, Blockbuster Video and St. John's Mercy Medical Center.

JULY & AUGUST

WALKING TOURS
Now All Tours Begin at 1:00 p.m.

Join us every Tuesday, Saturday and Sunday at 1:00 p.m. for a tour led by Garden Guides. You'll enjoy the grounds' summertime beauty, and learn about architecture, history, sculpture and horticulture at the Garden. Meet at the Ridgway Center ticket counter. Free with regular Garden admission.

JULY

1-4 SAT. – TUES.

Paintings by Robert Stolz

9 a.m. to 8 p.m. daily, Ridgway Center, exhibit continues. Paintings of botanical subjects. Free with regular Garden admission.

3 MONDAY

Plant Clinic

9 a.m. to noon, Ridgway Center. Bring your questions or ailing plants for free, expert advice on everything from plant identification to pest control to lawn care. Sponsored by KMOX Radio. Free with regular Garden admission.

5 WEDNESDAY

Children's Film Fest: "The Land Before Time"

11 a.m. and 1:30 p.m., Shoenberg Auditorium. Join us for this popular series every Wednesday in July. Admission is $1 per person. Doors open 30 minutes before showtime.

Missouri Botanical Garden

CALENDAR OF EVENTS

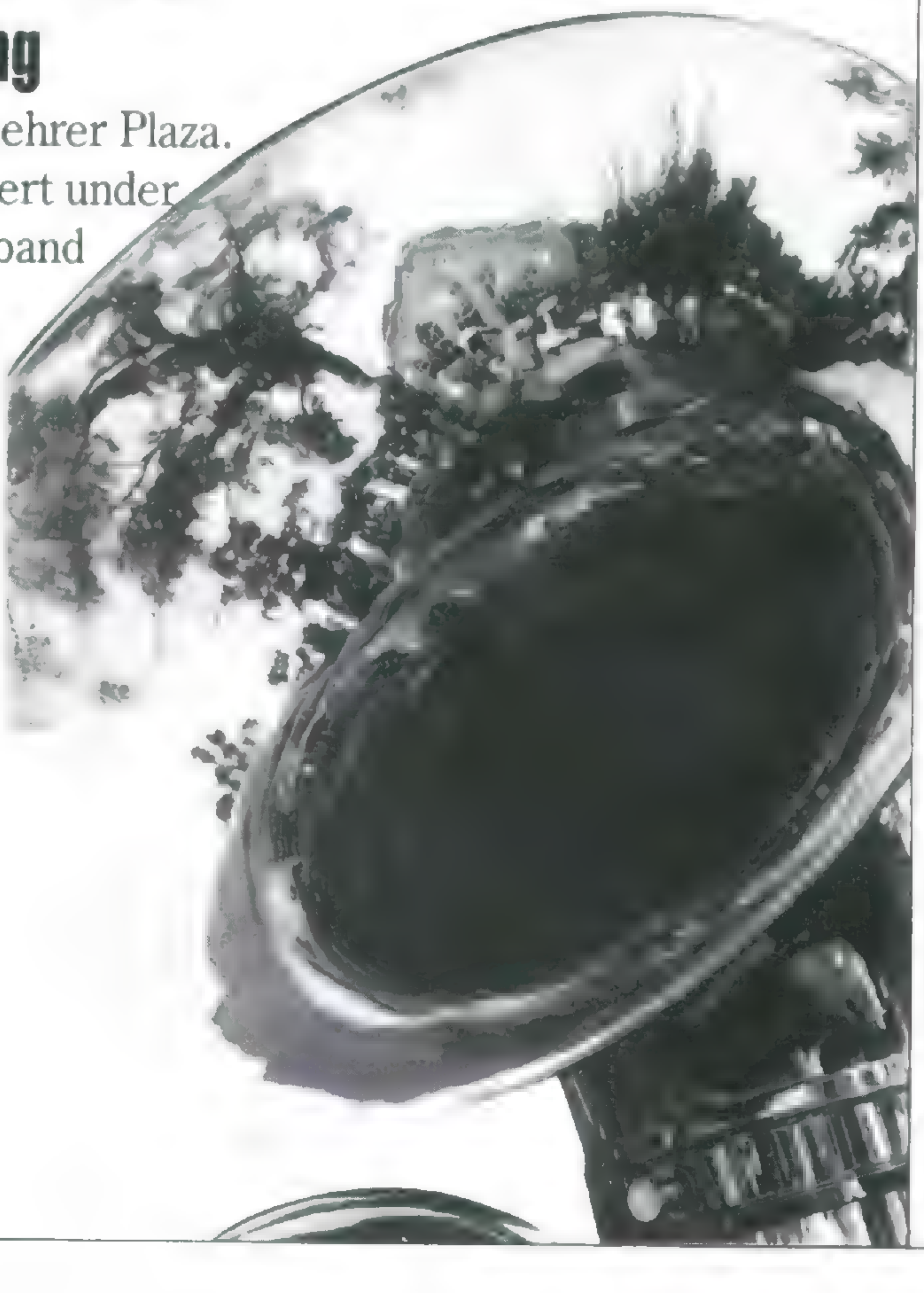
July-August 1989

JULY 23 / HENRY SHAW'S BIRTHDAY & Members' 50th Anniversary Celebration

4 to 8 p.m., Ridgway Center and grounds. Join us to celebrate Henry Shaw's 189th birthday, plus a very special salute to 50 years of Garden membership. Picnicking, Dixieland music, classic cars, the Sweet Adelines, free popcorn, ice cream and cake, and many more festivities. Watch your mail for a special invitation and reservation form. For Members only.

JULY 14 / MEMBERS' DAY
A Musical Evening

7:30 to 9:00 p.m., Spoehrer Plaza. Enjoy a delightful concert under the stars with the big band sound of the Gateway Band. Limited seating will be available; no reservations required. Free for Members only.

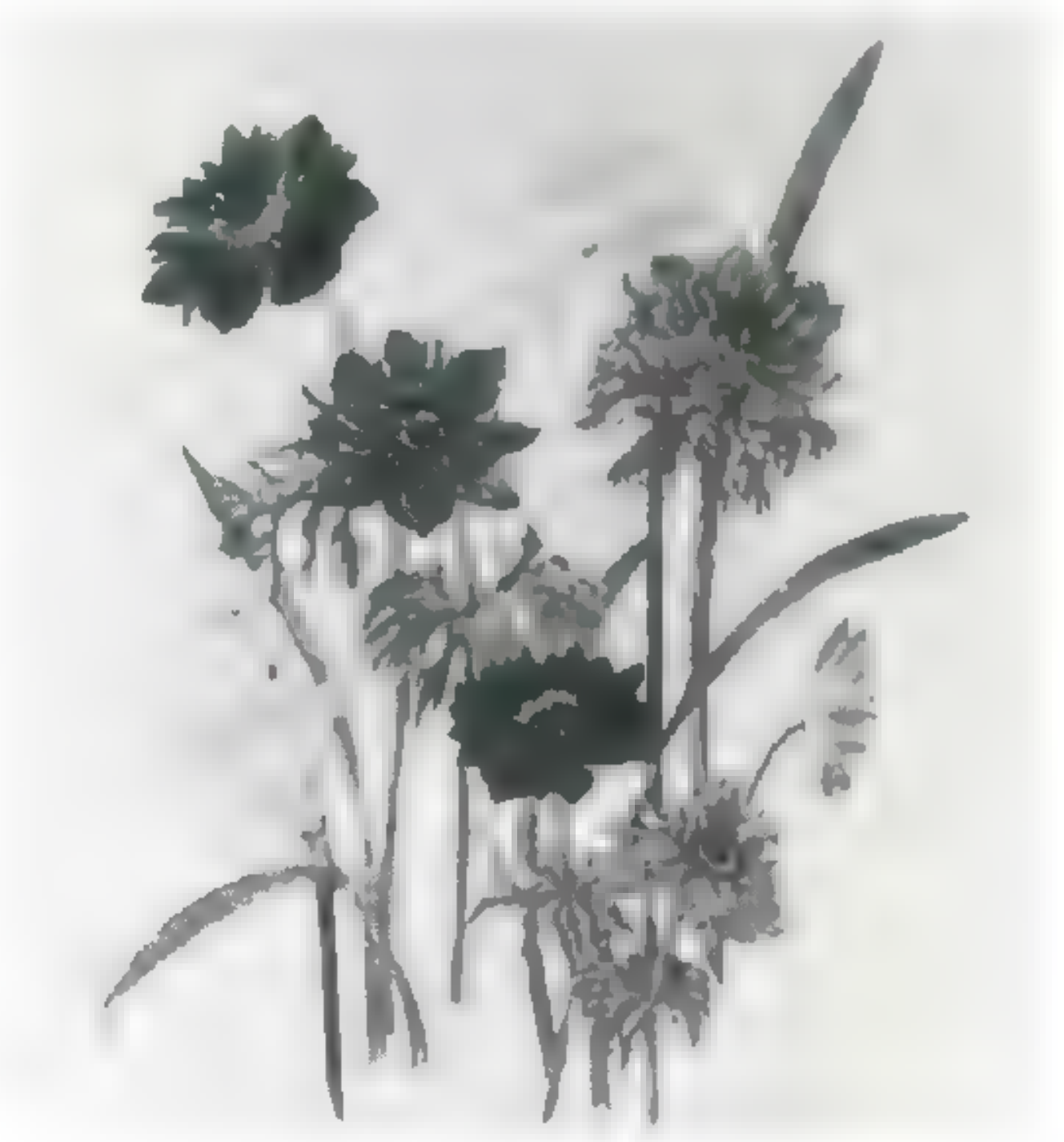


1939 50 1989
Years of Membership
Missouri Botanical Garden

8-16 SAT. – SUN.

Cactus Society Show

9 a.m. to 5 p.m. daily, Orthwein Floral Hall (show opens at noon July 8). An amazing variety of unusual and dramatic cacti will be display. Free with regular Garde admission.



JULY 8–AUGUST 6
Botanical Beauty II

9 a.m. to 8 p.m. daily, Ridgway Center. An exhibit of watercolors Jacqueline Broughton, nationally recognized botanical artist, depic the life cycles and folklore of flowers. Free with regular Garde admission.

12 WEDNESDAY

Children's Film Fest: "Mary Poppins"

11 a.m. and 1:30 p.m., Shoenber Auditorium. *See July 5 for details.*

14 FRIDAY

Folklore and Legends

11 a.m. to 3 p.m., Ridgway Cente Storytellers celebrate "It's A Sma World" with tales from around the globe by the St. Louis Gateway Storytellers. Co-sponsored by th St. Louis Public Library. Free wit regular Garden admission.

17 MONDAY

Plant Clinic

9 a.m. to noon, Ridgway Center. *See July 3 for details.*

19 WEDNESDAY

Children's Film Fest: "E.T. The Extra Terrestrial"

11 a.m. and 1:30 p.m., Shoenberg Auditorium. *See July 5 for details.*

1 FRIDAY

tanical Beauty Costume ntest

a.m., Ridgway Center and unds. Children come in costume l delight in modelling their origi- flower outfits, based on the ibit "Botanical Beauty II" (see y 8). In the "Garden Hunt" eryone will win a "botanical auty" to take home. Call 577-5125 more information. Free with ular Garden admission.

2-24 SAT. — MON.

ver Grove House Lemonade d Cookie Sale

30 a.m. to 2 p.m., under the tent the east side of Tower Grove use. The Auxiliary will celebrate nry Shaw's birthday with three s of Victorian refreshments at -fashioned prices.

24 MONDAY

"For Kids' Sake" Day: Public Celebration of Henry Shaw's Birthday

11 a.m. to 3 p.m., Ridgway Center and grounds. Join KMOV-TV, Channel 4 personalities, Ronald McDonald and Circus Flora in a public celebration of Henry Shaw's 189th birthday. Clowns, music, giveaways and surprises! Free with regular Garden admission.

26 WEDNESDAY

Children's Film Fest: "The Fox and the Hound"

11 a.m. and 1:30 p.m., Shoenberg Auditorium. *See July 5 for details.*

29 SATURDAY

Puppets Galore

11 a.m. to 4 p.m., Ridgway Center and grounds. A fun-filled day with the Puppet Guild of St. Louis. The Paul Mesner Puppets from Kansas City will present "The Dinosaur Show" and the roving "Mobile Mesner." Puppetry workshops will be offered with advance reservations required; call 577-5125 beginning July 17. A small fee for workshops includes admission; other participants admitted for regular Garden admission.

30 SUNDAY

Iris Society Sale

11 a.m., Ridgway Center. The Greater St. Louis Iris Society will hold its annual rhizome sale, including surplus rhizomes from the iris display at the Garden. Funds from the sale are used to add to the Garden's iris collection. Come early! The selection goes fast. Free with regular Garden admission.

AUGUST

-6 SAT. — SUN.

ban Gardening Fair

oon to 5 p.m. Saturday; 9 a.m. to .m. Sunday, Ridgway Center. ne Gateway to Gardening Associa- on sponsors this juried exhibit aturing prize-winning fruits, getables and herbs grown by area rdeners. Free with regular Gar- en admission.

MONDAY

lant Clinic

a.m. to noon, Ridgway Center. *ee July 3 for details.*

AUGUST 5 / MEMBERS' DAY

Early Morning Stroll

5:30 a.m., Ridgway Center and grounds. Bring your favorite coffee mug and stroll through the Garden; coffee will be provided. Sunrise is at 6:05 a.m.
No reservations required; free, for Members only.

19 SATURDAY

Fashion Forecast for Fall

9 to 10 a.m., North Center Court at Plaza Frontenac. A special event for Garden Members only. Jan McCormick, well-known fashion consultant and model, will show you how to build your fall wardrobe. Refreshments; limited seating. RSVP by calling Plaza Frontenac, 432-0604.

21 MONDAY

Plant Clinic

9 a.m. to noon, Ridgway Center. *See July 3 for details.*

Saturday, August 26-Monday, September 4 (Labor Day)

15TH ANNUAL JAPANESE FESTIVAL

"East Meets West"

11 a.m. to 8 p.m. daily, Ridgway Center and grounds. Celebrate the culture of Japan with music, performing arts, arts and crafts, and much more. Watch for more details; *see back cover.*

CENTENNIAL GALA

Bobby Short

SEPTEMBER 9, 1989

Bobby Short Returns to the Garden

A Garden Party with Bobby Short, a gala celebration in honor of the Centennial of the Board of Trustees, will be held on Saturday, September 9. In 1983, Mr. Short was the featured entertainer for a Garden benefit celebrating the Ridgway Center opening. The success of that delightful evening prompted him to respond with enthusiasm to the Garden's request for a return engagement.

America's most celebrated cabaret performer, Bobby Short has been acclaimed for his concerts and recordings of the songs of Cole Porter, George Gershwin and Rogers and Hart. He has entertained at the White House under the Nixon, Carter and Reagan administrations, and *Newsweek* wrote, "Like the songs he sings and plays, Bobby Short is a collector's item. And the people who collected him are legion, from the Duke and Duchess of Windsor . . . to Leontyne Price. He's an easily acquired taste—like caviar and champagne."

The black-tie evening will take place under a spectacular tent in the Garden, with cocktails, dinner, entertainment by Bobby Short, and dancing to music by the popular "Ritz" orchestra. Chairpersons for this fabulous event are Garden Trustees Mrs. Walter G. Stern and Andrew C. Taylor.

Members will receive invitations to the benefit in July, but reservations may be made now at $175 per person. Those who wish to be Patrons may contribute $500 per person, and a corporate table is $5000. Many corporate and patron sponsorships have already been sold, and Members are encouraged to make reservations early by calling 577-9500.

Reciprocal Memberships

Don't forget that one of your most delightful membership benefits is a chance to visit other botanical gardens and arboreta throughout the country. As you plan your summer vacation, consider visiting:

- Botanica, The Wichita Gardens, Wichita, KS
- Blithewold Gardens and Arboretum, Bristol, RI
- Dallas Arboretum and Botanical Society, Dallas, TX
- Hershey Gardens, Hershey, PA
- Massachusetts Horticultural Society, Boston, MA
- Memphis Botanical Garden, Memphis, TN
- Morris Arboretum, Philadelphia, PA
- Phipps Conservatory, Pittsburgh, PA
- Royal Botanical Garden, Hamilton, Ontario, Canada
- New York Botanical Garden, Bronx, NY

At all of these institutions you will receive free admission and special privileges, just as their members do when visiting the Garden.

Arbor Day Contest Winners

The winners of the Members' Family Arbor Day Essay Contest on April 8 have been announced. Chosen from a selection of essays by kids on "I Like Trees Because . . . ", the winners were John Lange, age 10, winner of brunch for four in the Gardenview Restaurant; and Rebecca Gotsch, age 8, winner of a $25 gift certificate from the Garden Gate Shop. Congratulations!

Garden Guides Have Openings for Volunteers

The Garden Guides are a very special group of men and women who share their love of the Garden with visitors of all ages. Guides are fully trained to discuss the history, horticulture, ecology, design, architecture and sculpture of the Garden and lead tour groups throughout the year. Volunteers commit to regular service, one day a week, plus free training sessions.

The Guides currently have openings for volunteers on Wednesdays, Thursdays, and Fridays, plus a few openings for those who can guide only on Saturdays. Please call Jeanne McGilligan at 577-5187 for details.

1988 COMMITTEE MEMBERS (seated, from left): Mim Kittner, Robert Kresko, Rosemary Carson; (standing, from left): Landers Carnal, Walter Stern, Sage Wightman, Peter Raven, and Jules Campbell. Not pictured: Patrick Ackerman, Frederick Atwood, John Biggs, James McDonnell, Donnell Reid, David Wells, Robert Williams, and Harry Wuertenbaecher.

HENRY SHAW FUND COMMITTEE RECOGNIZED

The Garden's Board of Trustees, meeting on April 19, received a report from O. Sage Wightman, Chairman of the Henry Shaw Annual Giving Committee, on the results of the Committee's 1988 campaign. Members of the Committee were recognized for their hard work and dedication to the Committee's successful effort.

The Henry Shaw Annual Giving Committee works to acquire operating support for the Garden's many programs and services. Tax support through the Botanical Garden Subdistrict of the Metropolitan Zoological Park and Museum District is a major source of revenue for Garden operations, as is support from more than 24,000 Garden memberships. Together, these two sources provide income to cover nearly fifty percent of the Garden's operating expenses. Admission fees and grants from foundations and corporations cover even more of these operating expenses.

However, these sources do not fund all of the Garden's activities in research, education and display. Contributions to the Henry Shaw Annual Giving effort by individuals and corporations make up the difference, and assure the caliber of culturally rich services for which the Garden is noted.

The annual appeal commences in the fall of each year. Committee members personally contact previous donors to provide them with an opportunity to make another gift to the Garden. In addition, new support is sought from persons in the community not yet involved with the Garden.

Not surprisingly, the person-to-person approach serves the Committee members well. In 1988, the Committee raised $135,000, exceeding their goal of $110,000. The effort successfully blended specific Committee goals with the second year of the Garden's capital campaign.

During his presentation to the Board of Trustees, Wightman cited "the persistence and tact of these Committee members," and noted their ability to understand the overall goals of the Garden. "The positive outcome of the Henry Shaw Annual Giving Campaign was the result of loyal, well-informed committee members, and Members and friends of the Garden who responded to their call because they want the Garden to maintain its prominent botanical role in the community, nation, and world," he said.

TOWER GROVE HOUSE

Henry Shaw's cylinder secretary

Restoration Begins on Henry Shaw's Office

The Tower Grove House Historical Committee is continuing its 30th anniversary project of renovating the furnishings in the house, and work has begun on the room that was Henry Shaw's office. Shaw's cylinder secretary desk has been restored, and wood blinds have been installed to replace the draperies at the windows. The flat-top desk, desk chair and painted chair will be restored this summer. The Committee also plans to refurbish the built-in bookcases in the office.

Auxiliary Elects New Officers

Tower Grove House Auxiliary has elected new officers for 1989. They are Eva Holobeck, president; Audrey Vitt, vice president; Virginia Blume, recording secretary; and Anita Siegmund, treasurer. The Auxiliary has made a donation to help with the restoration of Henry Shaw's office.

Garden Is Named Attraction of the Year

The Garden was recently named St. Louis Attraction of the Year by the St. Louis Hospitality Industry Council. Nominated with the Gateway Arch and the St. Louis Cardinals, the Garden was chosen as the St. Louis attraction that is most actively involved in promoting St. Louis and its facilities to convention, corporate and leisure-time visitors.

In addition, Teri Dresler, director of marketing for the Garden, recently was elected president of the St. Louis Attractions Association. Dresler has been associated with the association since its formation two years ago.

Ask the Answer Service

Sweet Corn, Roses and Lawns

Do you have a plant question? Call the Horticultural Answer Service, Monday through Saturday, 9 a.m. to noon, at 577-5143.

Q. How can I tell when my sweet corn is ripe?

A. Refer to the original seed packet for the "days to harvest" information and add that to your planting date. As the harvest date approaches, observe the color of the silk. When the silk becomes completely brown and dry, the corn should be ripe. You can also peel back the husk to see if the kernels are plump and full. If you are still unsure, try a taste test.

Q. My oriental poppies used to bloom well. Over the years, however, several large shade trees have grown up and now block most of the sun. As a result, the poppies rarely bloom any more. When is the best time to move them?

A. Don't move your oriental poppies until the leaves die down after flowering. The clump can then be dug and replanted whole, or if you wish, it may be separated into divisions about six inches across.

Transplant to a well drained, fertile site that receives full sun. A good location for oriental poppies is toward the back of a perennial border. In this situation, the foreground plantings will help hide the gap left behind when the foliage dies after the poppies go dormant.

Q. Why do the leaves on my Catawba hybrid rhododendrons curl? I water them, they bloom well, and they receive shade from several large old oak trees. They seem healthy otherwise.

A. Rhododendron leaves curl during hot, dry weather in order to conserve the moisture that is evaporating faster than the roots can replace it. Since your shrubs are apparently healthy plants, I suspect you are not watering sufficiently. Your "several large old oak trees" may just be more efficient competitors for the available water, leaving your rhododendrons a little drier than you might expect. If you haven't already done so, apply a three-inch mulch over the root zones of your rhododendrons and allow it to remain undisturbed all year. Use a material such as leaf mold, compost, aged sawdust, wood chips, shredded bark or oak tow. Renew the mulch yearly as the older material decomposes.

Q. My Martha Washington geraniums have stopped blooming. What can I do to get them to flower again?

A. Martha Washington geraniums (*Pelargonium ×domesticum*) normally bloom in spring and will only set flower buds when temperatures are below 60°F. Prune your plants back severely now to three or four buds. Leave the plants outdoors where they receive shade only during the hottest part of the day and water regularly. Bring your plants back indoors in fall and keep on the dry side in a cool, bright room where temperatures range from 45° to 60°F. As the days lengthen in late winter, flower buds will begin to form. This is your signal to increase watering and start regular feedings with a weak, balanced fertilizer.

Q. I'm new to rose growing, having inherited a bed of a dozen Hybrid Tea roses when I moved to my new house. The bushes bloomed heavily this spring, but sparsely since. Should I be feeding now for more blooms?

A. After the first flush of blooms in spring and early summer, Hybrid Tea roses settle back to a more leisurely pace of flower production during the summer months, so it is not unusual to experience reduced blooming during hot weather. In order to ensure the final flush of vigorous flowering in fall, certain tasks should be attended to now.

Additional watering may be necessary during dry times. Control of black spot fungus must also continue with regular fungicidal applications. Fertilizer may also be applied, but only until mid-August. Light liquid feedings at 10 to 12 day intervals will help to encourage better growth. A single application of about one cup of 12-12-12 fertilizer per bush can be put on before August 15th. Roses will also benefit from a side dressing at that time of two tablespoons of Epsom salts per plant. Finally, prune all faded blossoms to prevent your roses from setting seeds. Make your cuts below each spent flower at the first outwardly facing leaf with five leaflets on it.

Q. I'm concerned that white grubs are feeding in my fescue lawn and will cause damage. When should I apply grub control chemicals?

A. Any of the large selection of grub control compounds applied during late July and August will give effective control of white grub larvae. Be certain to follow label directions carefully.

Before using these chemicals, make sure grubs are the cause of your lawn problems. Generally, more than 10 grubs per square foot constitute a threat to your lawn's health and may warrant control. If there are fewer grubs present and damage is occurring, there may be another explanation. Poor underlying soil conditions, poor grass selection, improper watering, and fungus disease must all be considered.

It is interesting to note that well irrigated lawns are more likely to suffer grub damage than unwatered, dormant lawns. Soil moisture is necessary to prevent drying of grub eggs before they hatch. As a result, well watered lawns are more attractive to egg-laying beetles and more susceptible to potential damage.

TIMELY TIPS:

- Feed strawberry plants in August to encourage vigorous growth while plants are forming next spring's flower buds. A 12-12-12 granular fertilizer applied at the rate of 10 pounds per 1,000 square feet is sufficient. Water well and renew mulches to keep weeds under control.
- Plant autumn crocus bulbs in August for fall blooming.
- Sow seeds of chives, parsley, mint and thyme in pots during August for kitchen use this winter.
- Infrequent, deep soakings during dry times are best for trees and shrubs. Frequent shallow watering promotes surface rooting, making plants more susceptible to drought damage.

—Chip Tynan, The Answer Service

NEWS FROM SHAW ARBORETUM

Bluebirds Make A Comeback

The eastern bluebird, state bird of Missouri, is one of three species of bluebirds found in the United States, but it is the only one found east of the Rockies. During the past 50 years the eastern bluebird's population has decreased by as much as 90 percent. Two of the key factors contributing to this decline are competition for nest sites and habitat destruction.

In the late 1800s, two alien bird species were introduced to the U.S., the English house sparrow and the starling. These two species adapted easily to their new surroundings and have established their range throughout the country, usurping the nest sites of bluebirds in the process. In addition, upon finding an already occupied nest, starlings have been known to evict the resident bluebirds by breaking eggs and pecking the young to death.

Humans have also contributed to the bluebird's decline by destroying suitable nesting habitats. Because bluebirds are cavity nesters, they look for old dead trees and wooden fenceposts in which to build their nests. By replacing old fenceposts with new metal ones and removing dead trees when clearing land, people have unknowingly destroyed precious nest sites.

In an effort to encourage the comeback of the bluebird, Shaw Arboretum staff have erected nest boxes along the edges of meadows and the prairie and throughout the Pinetum. The staff members clean the boxes each winter prior to the bluebirds' arrival in early March.

After a period of courtship, the female bluebird constructs a nest of dried grasses in the nest box. One sky blue egg is laid each day until there are three to five eggs in the nest. After 14 days the eggs hatch. In another 15 to 20 days the young are ready to leave the nest. The females will usually raise two or three broods before September.

During the nesting season, the Arboretum staff watch the boxes carefully. Unwanted residents such as mice or wasps may have moved in, or rat snakes may be lurking nearby hoping to feast on the unattended eggs. But the risks are worthwhile, as the first broods of 1989 have produced 49 young bluebirds from the monitored boxes.

As you hike the 12 miles of trails throughout the Arboretum, watch for bluebirds and all the other wildlife that find a home in the rich diversity of habitats. You won't be disappointed.

—Lydia Toth, Coordinator,
Shaw Arboretum

A nest box at the Arboretum.

Baby bluebirds in one of the nest boxes.

IN MEMORIAM / *Adlyne S. Freund,* 1895-1989

The Adlyne S. Freund Visitor Center at the Arboretum.

Mrs. Freund

Garden members, staff and friends were saddened by the death on April 24 of Adlyne S. Freund, long-time friend and supporter of the Garden. Mrs. Freund was the widow of the late Eugene A. Freund.

In 1977, Mrs. Freund provided a substantial grant to the Garden to complete the acquisition of 220 acres of woodland meadow adjacent the Shaw Arboretum in Gray Summit, Missouri. The property included a rustic lodge, constructed of native stone and wood. In September of that year, the lodge was dedicated as the Adlyne Freund Education Center. Dignitaries heralded the range of educational programs to be offered, and proclaimed that the acquisition of the property would preserve a magnificent natural resource.

Today the Adlyne Freund Education Center hosts adult education classes, workshops, and teacher training institutes, fulfilling the vision held by Mrs. Freund and others more than eleven years ago.

Surviving are Mrs. Freund's daughter, Jane Freund Harris of Ladue; two grandchildren and two great grandchildren.

Tribute gifts in memory of Mrs. Freund will benefit the Adlyne Freund Education Center at the Arboretum.

Explorers Visit the Smokies

Members of the Henry Shaw Academy Explorer program spent their spring field trip in Great Smoky Mountain National Park, studying the regional forest systems. The students were excused from a day of school to make the three-day trip. In May the Explorers will investigate Missouri swamp ecosystems.

All of the Explorers will participate in the summer field trip this year, a week-long field study program in Jamaica. The trip will include studying marine ecology, tropical forests and coral reefs.

The Explorer program is for 14 to 18 year-old students who already have a background in general science or biology. It uses field research methods to study the diversity of the earth's ecosystems. Explorer members have monthly weekend sessions and take field trips to such locations as Missouri caves, state parks, the Smoky Mountains and the Arboretum.

The program offers a full year's credit in high school elective biology to students who attend the monthly sessions and satisfactorily complete independent field projects and journals. Those students who also demonstrate outstanding skills in leadership and field research are eligible for summer field trips.

The program runs from September through August and is limited to 13 participants. Applications for the 1989-90 school year are available now; call 577-5135 for information. Fees vary for each activity, and some scholarship money may be available.

The Henry Shaw Academy

The Henry Shaw Academy offers students ages 7 to 18 unique and exciting ways to investigate topics in science, ecology and natural history. Academy students pay an application fee, which includes free Garden admission for a year, and entitles them to opportunities to participate in seasonal classes and programs held at the Garden, Shaw Arboretum and local parks.

The Academy offers fall, winter and spring classes as well as a summer science camp for 7 to 13 year olds. The Explorer Field Study Program is available to qualified students ages 14 to 18. Watch for the fall class brochure, or call 577-5135 or 571-5140 for information on all Academy education programs.

Explorers on their field trip to Great Smoky Mountain National Park

Planned Giving

GIFTS BY WILL

Each year, many friends of the Garden make provisions for the Garden in their Wills. Their reasons for doing so are many and varied, including—

- a love for the Garden whose future progress they wish to aid.
- a desire to ensure that future generations enjoy this beautiful facility.
- a wish to honor a loved one who had a special affection for the Garden.

The gifts made by these Will provisions vary considerably in size depending upon personal circumstances of the donor. All, however, are important to the Garden and all are appreciated. It is hoped that the information provided on Wills from time to time will encourage Members to review their personal situation, write their Will if they have not done so already, or alter the one they have if there are changes in interests or circumstances. It is most important to make certain that family and loved ones are included in the Will. And, it is hoped that if the Garden has provided special enjoyment over the years, it too might be considered for a remembrance with a gift.

If you are thinking about including the Garden in your estate plans and you would like more information about how your gift could be effectively used, please write or call our Planned Giving Officer, Ernestina Short, P.O. Box 299, St. Louis, Missouri 63166-0299, or call (314) 577-9532.

Volunteers Needed for the Japanese Festival

The fifteenth annual Japanese Festival will be held August 26 through September 4, and volunteers are needed for weekdays and weekends to give information on the phones and at the ticket counter. We also need help selling and collecting tickets, assisting Garden Guides on Teahouse Island, and working with the origami instructor in his classes. If you are willing to help or would like some more information, please call Jeanne McGilligan at 577-5187.

Walter Lewis (left) and Robert Bowden, director of horticulture, examine the collection upon its arrival at the Garden.

WORLD'S FINEST SANSEVIERIA COLLECTION

In April, the Garden received an outstanding donation to its horticultural collection, a gift of 58 potted sansevierias from Dr. Walter H. Lewis. Dr. Lewis, professor of biology at Washington University, is a long-time Garden research associate and was head of the Garden's herbarium from 1964 to 1971. The sansevieria collection, which Lewis has maintained and added to at Washington University since the early 1970s, was originally established by the U.S. Department of Agriculture at Coral Gables, Florida. Thanks to Lewis' gift, the Garden suddenly possesses what must be the world's finest sansevieria collection.

Named "mother-in-law's-tongue" by some gardener suffering from family disharmony, sansevierias rank among the most abuse-tolerant potted plants. For this reason, their attractive, thick, long, strap-shaped, pointy-tipped, and often variegated leaves stand proudly in planters in public buildings everywhere. But we usually see just one species, *Sansevieria trifasciata*, and miss out on some 60 additional species, which are mostly native to Asia and Africa. Most of the new sansevierias are natural species, which will allow the Garden to display the diversity and beauty of a cultivated genus that is not as familiar as we thought.

From the Garden Gate Shop

Raven and Johnson Autograph New Edition

Dr. Raven (left) and Dr. Johnson (center) show a copy of Biology *to a customer in the Garden Gate Shop's new book department.*

Dr. Peter H. Raven, director of the Garden, and Dr. George Johnson autographed the revised edition of their book *Biology* on May 2, 1989, in the newly expanded book department of the Garden Gate Shop. The first edition of *Biology*, an introductory text for majors in the subject, was used by more than 70,000 students in its first year.

Dr. Johnson, director of the Education and Discovery Center for the St. Louis Zoological Park, is a Professor of Biology at Washington University.

"Our text is presented as a scientific 'narrative', whose beginning is the origin of living things, and whose storyline is the evolutionary history of life on earth," the authors write in their preface to the new edition.

Copies of the revised edition are available for purchase in the Shop's newly remodeled book department, which opened this spring.

Summertime in the Shop features accessories for outdoor entertaining, and chimes, sundials and statuary that will be enjoyed for years.

The Japanese Festival in August will find the Shop brimming with Oriental gifts including Japanese figurines, costumed dolls, silk fans, origami kits and hand drums. The Plant Shop will have bonsai, Japanese lanterns and oriental statuary. And, once again, the Shop will feature a T-shirt made especially for this year's Japanese Festival.

Organic Fertilizers

Ringer Organic Fertilizers for vegetables, outdoor and indoor plants, will be sold in addition to the natural insecticides already available in the Shop. The Garden, which has made a commitment to using and selling natural products, has added this line of natural fertilizers in response to Members' requests.

Behind the Scenes

Jessica Ventimiglia, the Garden's grants administrator resigned in June to move with her family to Florida, where she will be controller of the Marie Selby Botanical Gardens in Sarasota.

Jessica began working for the Garden in 1977 with the Capital Fund Campaign, and became grants administrator in 1983. She also served as the Garden's representative to the Botanical Garden Subdistrict Commission and as assistant secretary to the Board of Trustees. Jessica said it has been a great pleasure and privilege to work with the Garden's staff, Trustees and Subdistrict Commissioners, and she extends an invitation to the "Garden family" to visit her in Florida.

Raven Honored by Franklin Institute

Peter H. Raven, director of the Garden, was awarded the Delmer S. Fahrney Medal by The Franklin Institute at an awards dinner in Philadelphia last evening. The Fahrney Medal is named for Rear Admiral Delmer S. Fahrney, who is credited with the development of radio controlled aircraft. The medal was first awarded in 1975.

Raven was recognized for "leadership exercised in the advancement of science," for his scientific research in botany, and for his visible stance on conservation.

The Franklin Institute, named for Benjamin Franklin, was founded in 1824. Originally it aimed to bring the insights and methods of scientists to bear on the industrial economy. As needs have changed, the Institute's programs have evolved to include a museum, library, educational programs, dissemination of scientific information and the recognition of those who provide leadership in related areas.

Marilyn Svejkosky, gift sales supervisor in the Garden Gate Shop, has retired after more than 18 years with the Garden. During Marilyn's years of service, the Shop moved from Flora Gate to the Ridgway Center, and has expanded its inventory and services enormously. In the early days she was the only paid staff during the week, assisted by volunteer workers. Marilyn has witnessed record sales due to the Shop's expansion and the loyalty of Members and visitors, and her fondest memories are of her association with a dedicated staff and committed volunteers.

Marilyn is now associated with Tandem Medical Supply, Inc., a medical supply business started several years ago by her two sons.

Botanical Garden Subdistrict Elects Officers

At the annual meeting of the Botanical Garden Subdistrict Commission held on May 10, 1989 the following commissioners were elected as officers for one-year terms: Marjorie M. Weir, chairman; George H. Walker III, vice-chairman; Doris Moore-Glen, treasurer; John P. Barrie, secretary.

The immediate past chairman of the commission was Walter G. Stern. Other commisioners are: Sandra H. Bennett, Betty Farrell, John H. Poelker, Pamela Shephard, Robert M. Sunnen.

The Commission of the Botanical Garden Subdistrict is a subdistrict of the Metropolitan Zoological Park and Museum District of the City of St. Louis and the County of St. Louis.

IMS Awards Garden $75,000

The Institute of Museum Services (IMS) has awarded the Garden one of its prestigious grants for 1989. These funds assist museums in supporting basic services and programs. A total of 400 awards out of 1355 applications were made. Grants are made to museums of all types and sizes throughout the United States.

The Garden received $75,000, the maximum grant made by the IMS. The award is based on the strength and quality of the applicant, as defined by its management of available resources to provide the best possible services to its community and the general public.

The IMS is as independent federal agency established by Congress in 1976 to assist museums in the efforts to preserve the nation's cultural, historic and scientific heritage.

Moving? Please Remember To Send Us Your New Address.

To avoid missing any of your membership mailings, you *must* give us your new address at least three weeks *before* you move. Please enclose the mailing label on the back cover of this *Bulletin*, and mail to: Membership Office, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166.

Name:

Old Address:

City

State Zip

New Address:

City

State Zip

Date Effective:

Phone (day)

Calder's "The Tree" Is Sold

"The Tree" in its location at the Garden.

On Monday, May 22, 1989, Alexander Calder's steel sculpture "The Tree" was sold in an auction at Selkirk's in St. Louis. The huge mobile, created in 1966, has been at the Garden on extended loan since 1981. It was sold as part of a foreclosure sale of the Mansion House Center's assets ordered by U.S. District Court.

"The Tree" brought a record price of $1.9 million, the highest ever paid for a Calder sculpture. It was bid by Ronald Greenberg of the Greenberg Gallery of Contemporary Art in St. Louis. Greenberg announced plans to remove the sculpture from the Garden and offer it for sale.

Tributes

MARCH - APRIL 1989

In Honor Of:

Ms. Nancy Ade
Yuppie Landscaping Corporation
Mr. and Mrs. Lester Adelson
Mrs. Benjamin H. Cohen
Mrs. Henry L. Freund
Mrs. Jane A. Jacobs
Mr. and Mrs. Joseph F. Ruwitch
Ms. Judith Bellos
Mr. and Mrs. Wayne Lowe
Mr. and Mrs. Leonard Block
Mr. and Mrs. Jerome Michelson
Mr. Steven Borowsky
Miss Iris Wagman
Mr. and Mrs. Melvin S. Strassner
Mrs. Alita Canis
Mr. and Mrs. Paul T. Putzel
Dr. Jerome R. Cox Jr.
Mrs. Robert H. Kittner
Joy and Mel Dunkelman
Mr. and Mrs. Harris J. Frank
Gloria Freund
Dr. and Mrs. Robert Vanderpearl
Mr. and Mrs. Milton Freund
Mr. and Mrs. Rudolph Freedman
Mr. and Mrs. Steven L. Handelman
Mr. and Mrs. Richard Halpern
Mr. Sam Heyman
Mr. and Mrs. Herbert M. Talcoff
Mrs. J. A. Jacobs
Mrs. Helen C. Maurer
Miss Rosemary Woodworth
Mr. and Mrs. Ronald Jennings
Mr. and Mrs. Jeffrey C. Pohle
Mrs. Peggy Jones
Mr. and Mrs. David J. McKay III
Jim and Adele Kurz
Mr. and Mrs. Jerome Michelson
Mrs. Milton Kushkin
Mrs. Myrtle G. Weinrobe
Mr. and Mrs. Oliver Langenberg
Mr. and Mrs. Neil F. Maune
Mr. and Mrs. Ted Lapides
Mr. and Mrs. Bert Schweizer II
Mrs. Rita Levis
Mrs. Lilly Ann Abraham
Mr. Wesley J. Lomax
Mr. and Mrs. Bernard A. Barken
Mrs. Helen C. Maurer
Miss Rosemary Woodworth
Mr. Albert M. Melman
Teel Ackerman
Martin O. Israel
Mrs. Barbara Murphy
Mr. and Mrs. Charles J. Cook
Dr. Edward Okun
Dr. and Mrs. Marvin Gernstein
Dr. Lawrence A. Pilla
Mrs. Richard M. Birner
Willis Pottoff
Trudy Faust
Carondelet Y's Men's Club
Miss Preci
Miss Ann Elbert
Mr. and Mrs. Frank Prins
Mr. and Mrs. Henry C. Lowenhaupt
Mrs. Martha Rounds
Mr. and Mrs. Fred Levis
Mr. Louis Sachs
Mr. and Mrs. Frank Adam
Mr. and Mrs. W. L. Beaver Jr.
Mr. and Mrs. Kenneth L. Dauphin
Mr. and Mrs. Richard K. Hays
Mr. and Mrs. Phillip Schreiber
Dr. Hyman Senturia
Dr. and Mrs. Harold M. Cutler
Mr. and Mrs. David Sher
Mr. and Mrs. Jerome Michelson
Mr. and Mrs. Marvin Simon
Mr. and Mrs. Herbert M. Talcoff
Mr. Ralph Soule
Mrs. Samuel D. Soule
Professor Sondra Stang
Mrs. Bernetta Jackson
Mr. John Temporiti
Mr. and Mrs. Sanford Neuman
Mr. and Mrs. Anthony Tornatore
Ms. Ann K. Wilder
Mr. Joseph Tucker
Mrs. Alberta S. Kalish
Mr. and Mrs. Paul Ullman Jr.
Mr. Martin Wales
Mr. and Mrs. Jerome M. Steiner
Mr. and Mrs. Norman Wielansky
Mr. and Mrs. Melroy Hutnick
Mr. and Mrs. Gerald V. Williamson
Elizabeth G. Brokaw
Mrs. Dwight W. Coultas

In Memory Of:

Joan Abrams
Mrs. Peggy Moehlenbrock
Mr. Frank Afton
Dr. Dorothy J. Jones
Mr. Louis J. Alfeld
Mrs. Louis J. Alfeld
Mr. Richard Alt
Mr. and Mrs. W. Anderson Payne
Nan Anthony
Miss Marilyn L. Wind
Mr. Morris Arky
Dr. and Mrs. Arthur E. Carlson
Mr. John Arnold
Mrs. Angus S. Alston
Mrs. Olin M. Attebery
Ms. Mary J. Cloyd
Mrs. Mabel A. Bader
Mr. and Mrs. Rudyard K. Rapp
Mrs. Jane Caulfield Baer
Mr. and Mrs. Charles J. Cook
Mrs. Howard H. Hubbell
Mr. and Mrs. Elmer W. Wiltsch
Mr. Lyman F. Barrows
Mr. and Mrs. Neil F. Maune
Mr. John H. Munch
Mrs. Margie Bax
Mr. and Mrs. James E. Hanick
Mr. Frank Becker
Mr. and Mrs. J. Edward Heichelbech
Mrs. Vilma A. Begeman
Mr. and Mrs. Robert H. Asbury
Mrs. Dorothy Birk
Mrs. Patty Arnold
Charles and Diana Becker
Dorothy Becker
Dr. and Mrs. Stephen F. Bowen Jr.
Mrs. Alice Coleman
Mr. Howard Coleman
Mr. and Mrs. Samuel J. Copple
Mr. and Mrs. Larry DeMoor
Mr. and Mrs. Henry W. Dubinsky
Mr. and Mrs. Robert P. Elsperman
Mr. and Mrs. Edward F. Gereke
Mrs. B. J. Hueser
Mr. Leo Jaudes
Dr. and Mrs. Donald Judd
Mrs. Robert H. Kittner
Mr. and Mrs. Charles J. Kohler
Ms. Frances B. Kroeger
Mr. and Mrs. Pierre L. LaBarge Jr.
Mr. and Mrs. Louis A. Latzer
Mr. and Mrs. Robert F. Lee Jr.
Dr. and Mrs. Antonio I. Longrais
Mr. and Mrs. Ted McClure
Mr. and Mrs. David D. Metcalfe Jr.
Missouri Botanical Garden—Members' Board
Mr. and Mrs. Robert F. Nagel
Mr. and Mrs. Rudyard K. Rapp

continued on next page

Tributes

continued

Mr. and Mrs. Winthrop B. Reed
Dr. and Mrs. Leslie Rich
Dr. and Mrs. William A. Sims Jr.
Mr. and Mrs. Ralph L. Smith
Mrs. Yolanda Taylor
Mr. and Mrs. A. Roy Weisheit
Mr. and Mrs. Bruce E. Woodruff
Mrs. Herbert W. Ziercher
Mr. and Mrs. Charles Zurheide

Miss Mary Blackburn
Moe Ball
Arthur Bertelson
Ms. Christy Bertelson
John Brophy
Sally Bixby Defty
Arthur Fox
Martha Fox
Greg Freeman
Ms. Ellen M. Gardner
Jane Gore
Sally and Ray Gunter
Mr. and Mrs. William S. Knowles
Lois Kuhl
Mrs. Charlotte Machetto
Mr. and Mrs. Robert W. Manning
Claudia Mac Lachlan
John M. McGuire
Mr. and Mrs. Norm Nielsen
Ron Norton
Sue Ann Poor
Bob Posen
Pat Rice
Bob Sanford
Marsha Sanguinette
Mr. and Mrs. Glen C. Schomburg
Mr. Sam Shelton
Roger Signor
Landon Smith
Nanci Stoddard
Jerri Stroud
Pat Tummons
Mr. Robert C. Watkins
Dick Weiss
Miss Patricia R. Williamson
Rita Kelsey
Steven Lindauer
Carrie Melita
John Morton
Ravi Nanda
Mary Neil
Louis Norton
Anil Patel
Todd Rankin
Barbra Rich
Douglass Rollins
Richard Rosenbloom
Bhavna Schroff

Mrs. Betty Blake
Mr. Bernard S. Wildi

Mr. Ervin Booth
Miss Constance Ford

Mrs. Paul Britt
Mrs. E. Douglas Britt

Mrs. Brock
Ms. Jimi James

Mrs. Babel B. Brown
Mr. and Mrs. Henry W. Atwood

Mr. James K. Bude
Ms. Rebecca L. Barnard

Mr. William P. Bumberry
Dr. and Mrs. Thomas Chida

Mrs. Victoria C. Burridge
Dr. and Mrs. John S. Skinner

Rose Burstone
Bill Barnes
Dan Dixon
Francis Feeney
Maurice Firouz
Cheryl Fogg
Jean Gioiele
Richard Goldberg
John Griffiths
Page Hudson

Mrs. Esther Cohen
Mr. and Mrs. William B. Eiseman Jr.

Mrs. Joseph Cohen
Mr. and Mrs. Myron Glassberg

Mr. Sidney S. Cohen
Mr. and Mrs. Bertram Gabriel Jr.
Mrs. Patricia Rich

Mrs. Dorothy Connelly
Mr. and Mrs. Bo Axelrod
Mr. Jay A. Epstein
Mrs. Virginia M. Epstein
Mrs. Alma Winkler

Mrs. Carolyn Costen
Mr. and Mrs. R. E. Bates
Mr. Charles Beech
Mrs. Roberta J. Burkley
Mrs. Jean Costen Carr
Dr. William S. Costen
Mr. and Mrs. Richard H. Daley
Mrs. J. Rice Dunkelman
Mr. and Mrs. John G. Goessling
Mrs. Inez Greenspon
Sr. Jane Hassett
Mr. and Mrs. Gerald E. Kimberlin
Mrs. Crockett L. Klein
Ina G. Kopman
Ladue Garden Club
Mrs. C. Clark Leonard
Edwin Levis Jr.
Mrs. Loraine G. Lewis
Mrs. Martha Y. Mahaney
Mrs. R. M. C. Ormrod
Dr. and Mrs. Peter H. Raven
Mrs. Roy Rehme Sr. and Children
Dr. and Mrs. William K. Saigh
Mr. and Mrs. Robert R. Sheahan
Sue Starnes
Mr. and Mrs. Fritz Steffen
Mr. Lynn E. Stuart
Marjorie Tarver
Mrs. Theodore E. Walsh
Col. Richard E. Whitmire
Barbara and Peck Wilkins
Mr. and Mrs. Howard J. Wilkinson Jr.

Mrs. M. Cowie
Mrs. James E. Hanick

Miss Sylvia Darevsky
Mr. and Mrs. Ben Cohen

Mrs. Doris M. Davis
Mr. John R. Brophy

Mrs. Charles Day
Mr. and Mrs. Louis A. Hoerr II
Mrs. Roblee McCarthy
Mr. and Mrs. Charles L. Tooker

Mrs. Lorraine Dessau
Mr. Dale L. Boring

Mrs. Lillian Dobbins
Mr. and Mrs. Fred Droke

Mrs. Ralph D'Oench
Mrs. Warren C. Bruce
Mrs. R. W. Butterworth
Mrs. Eugene Darst
Mr. and Mrs. Charles H. Reasor
Mrs. George W. Skinner

Mr. Orville Drake
Mr. and Mrs. Sam Zemmel

Mrs. Clara Drinen
Miss Ruth E. Buerke

Mr. Arthur Dunkin
Mrs. J. Maver Feehan

D'Arcy Elsperman's Father
Mr. and Mrs. John Torrey Berger Jr.

Mr. Walter J. Emes
Mrs. E. Janet Emes

Mrs. Martha Endres
Mr. and Mrs. Richard T. Risk

Mrs. Yetta Esrock
Dr. Esrock's Office Staff

Mr. Perry H. Ferguson
Mr. and Mrs. Andrew Ferguson

Mrs. Shewell W. FitzRoy
Mrs. William H. Leyhe Jr.

Mr. Don Frandle
Larry, Sara, Rustin Simpson

Mrs. Adlyne Freund
Mr. and Mrs. Arthur E. Ansehl
Mr. and Mrs. Paul M. Armin
Ms. Ruth E. Buerke
Mrs. William J. Chapman
Mrs. Mary DeBrecht
Mrs. Henry L. Freund
Sr. Jane Hassett
Mr. and Mrs. Philip N. Hirsch
Japan America Society of St. Louis
Dr. Dorothy J. Jones
Dr. Robert A. Koetting
Mr. and Mrs. John J. Meier
Mr. Forrest J. Murphy
Ms. Annie Pope
Mr. and Mrs. Richard B. Rosenthal
Mr. and Mrs. George B. Sloan
Mr. and Mrs. Robert Wegusen

Frieda Rose Frillman
Tom, Ann, Adam, Susan Frillman

Mr. Gene Furman
Mr. and Mrs. Erwin R. Breihan

Miss Catherine E. Gaffney
Mr. and Mrs. Joseph D. Boing

Dr. George Gantner
Mr. and Mrs. Edward A. Higgins

Mr. Jack Garlich
Mr. and Mrs. James D. Nease

Judith Geohegan-Doi
Family and Friends

Mr. Edmund W. Gifford
Dr. and Mrs. Antonio I. Longrais
Dr. and Mrs. Stephen J. Vitale

Mrs. Edyth Gloor
Mrs. Robert H. Kittner

Muriel Gotwals
Frontenac Garden Club

Mrs. Lillian Graham
Bess Corn
Jane Corn
Pat Scott

Mrs. Louise Graham
Mr. and Mrs. Paul W. Reime

Mrs. Mary Gray
Miss Agnes Koenig

Mrs. Alice F. Greensfelder
Mrs. Franklin J. Cornwell Sr.

Mrs. Leonard Griggs' Mother
Dr. and Mrs. Donald Ross

Mrs. Evelyn Gutting
Mrs. Josephine A. McDonald

Mrs. Lessie A. Hamel
Anonymous
Mrs. John B. Clayton Jr.
Commerce Bank of St. Louis—
Trust Department
Mr. Stephen A. Cooper
Mr. and Mrs. Charles T. Dee
Ms. K. Ann Dempsey
Mr. and Mrs. Clark M. Driemeyer
Mrs. Alberta D. Fuidge
Mr. and Mrs. George B. Hagee
Mr. and Mrs. James J. Hennelly
Mr. and Mrs. Robert Hetlage
Mr. and Mrs. Melvin A. Hoey
Mrs. Frances Kirk
Lashly, Baer & Hamel
Mrs. Marie Lauer
Ms. Helen M. Longmire
Mrs. Mutz McFarland
Mr. and Mrs. Thomas Mills
Mr. and Mrs. Bob Mohme
Elisabeth Nohl
Mr. Quintin Papineau Jr.
Ms. Ella M. Placke
Mrs. G. P. Plaisance
Mr. Jack W. Schaper
Mr. and Mrs. Arthur E. Schmid
Mr. and Mrs. Dalton W. Schreiber
Janet Steiger
H. W. and O. K. Vahle

Mr. Brian Haney
Dixie Danzeisen
Mattie Danzeisen

Mr. Robert Heimbuecher
Mrs. Rosemary Meacham

Mr. Brian Henry
Mr. Joe Roth

Mr. James E. Henske
Arthur Andersen & Company

Mrs. Dorothy Herchert
Mr. and Mrs. Karl P. W. Wolf

Mrs. Helen Hoss
Mr. and Mrs. Willis S. Cady

Mrs. Helen Howald
Mr. John Boland
Mr. Fredrick Fischer

Mrs. Patricia M. Hubert
Mr. David H. Hubert Jr.

Mr. Robert Humbrecht
Mr. and Mrs. Joseph M. Arndt II

Annie Humphrey
Mr. and Mrs. Alvia D. Voss

Mrs. Albert Irwin
Mrs. Stella B. Houghton
Mrs. John C. Tobin Jr.

Catharine James
Carl Seltzer
Jo Seltzer

Mr. Harold Jenkins
Mr. and Mrs. Michael Sneden

Mrs. Evelyn Jones
Mr. and Mrs. W. L. Lindsay

Mr. Warren Kelley
Sarah Atkins
Barbara Brigham

Miss Jean M. Kennedy
Miss Bess J. Corn
Ms. Louise C. Ittner

Dr. Teofil and Olga Kheim
Architectural Bronze Studio, Inc.
Mr. and Mrs. William G. Hayes

Mr. and Mrs. Robert A. Hill
Mrs. Virginia H. Horton
Mr. and Mrs. Robert C. Hutchinson
Mr. and Mrs. Robert A. Kountz
Mrs. William B. Kountz
William B. Kountz Jr.
Mr. and Mrs. Rudy Leimbach
Mr. and Mrs. Beaumont M. Parks

Mrs. Sophia W. Klauber
Mr. and Mrs. Harry K. Frank

Mr. Morris Klevens
Dr. and Mrs. Marc Singer

Emily Koehler
Mr. and Mrs. Eugene F. Kern

Mr. Ely Kopman
Mr. and Mrs. Paul M. Arenberg
Mr. and Mrs. Howard F. Baer
Mr. and Mrs. Charles J. Cook

Maize Kourik's Mother
Mr. and Mrs. Frank Roth

Miss Laura Kromar
Mrs. Carol Kriegshauser

Mrs. Esther Kunes
Mr. John D. Phillippe

Mrs. Edward Lammert
Mr. and Mrs. Arthur Butow

Mrs. Roslyn E. Littmann
Mr. and Mrs. Robert N. Schulte

Miss Susan Loehr
Mrs. Annette V. DeVos

Mrs. Joseph Loffler
Mr. and Mrs. Robert E. LaMear

Loved Ones
Ms. Vera A. Obst

Mrs. Marie G. Ludwig
Mrs. Clara Ann Henry

Mr. Joseph Lynch
Dr. and Mrs. George E. Mendelsohn

Mr. Wilton Manewal Jr.
Mr. and Mrs. William A. Frank
Mr. Robert N. Hagnauer
Mr. and Mrs. Robert R. Sheahan

Mrs. Sharon K. Marglous
Barbara Boskamp
Mr. and Mrs. Robert Crowe

Mrs. Evelyn C. Marr
St. Louis Horticultural Society

Teijiro Matsuzaki
Haruka, Ayako, Hideki, Kaoru Watanabe

Mr. Roblee McCarthy
Mr. and Mrs. Erwin M. Meinberg
Mr. and Mrs. Frank J. Pollnow Jr.

Mr. William J. Meisburger Jr.
Miss Marion Bock

Mrs. John Morfit
Mrs. William Bixby Jr.
Mrs. John E. Curby
H. W. Lewis
Allison Lewis Maher
Mrs. Walter F. Raven
Mr. Lawrence K. Roos
Mr. and Mrs. James A. Singer
Mrs. Whitelaw Terry

Genie Mueller's Father
Mr. Lewis A. Levey

Mr. George Muir
Miss Dorothy M. Hanpeter

Mrs. Helen Multin
Mr. and Mrs. Richard Halpern
Mr. and Mrs. Herbert M. Talcoff

Robert L. Murphy
Joan Murphy

Mrs. Rosemary Nall
Mr. and Mrs. Harold E. Thayer
Mr. and Mrs. Clarence T. Wilson

Mrs. Madelaine Neiswander
Mr. and Mrs. Paul D. Wright

Mrs. Chapin Newhard
Miss Adelaide Cherbonnier

Miss Denise Nicholson
Mr. and Mrs. Robert D. Rich

Miss Janet Noel
Mrs. C. H. Bley

Mr. Arthur Ocker
Mr. and Mrs. F. A. Berger Jr.

Mr. George B. Oonk
Dr. and Mrs. Paul O. Hagemann

Mr. Shannon L. Orchard
Miss Marilyn M. Erickson

Mr. Daniel Pacey
Mr. and Mrs. Clinton J. Phillips

Mr. Herbert C. Phillips
Mrs. David R. Francis III
Mr. and Mrs. John G. Goessling

Mrs. Harriet Porter
Mrs. Kathryn M. Buder
Mr. and Mrs. Alphonse F. Dames Jr.

Nancy Ellen Raisher
Diane Woepke

Mrs. Edna Reifesiess
Mr. and Mrs. James E. Hanick

Mr. and Mrs. Henry Reitz
Mrs. Dorothy Hoffman
Mr. Kenneth Hoffman
Alma K. Reitz
Eileen Reitz

Mrs. Ruth T. Rice
Mrs. Ruth E. Scott

Mr. Harvey Rosen
Mr. and Mrs. Harvey Shapiro

Bess Goldstein Rosenbloom
Marjorie Rosenbloom Berg

Mr. Jerry Rosin
Mr. Dale L. Boring

Mrs. Thelma Routt
Mr. and Mrs. Louis E. Stuetzer

Mrs. Betty Russo
Mr. and Mrs. Donald J. Wiese

Mr. Dan Sakahara
Dr. and Mrs. Isaac Boniuk
Dr. Yasuo Ishida

Christine Schaan
Mrs. Georgia L. Perry

Mr. Robert G. Schaeffer Sr.
Mr. and Mrs. Ben Alper
Mr. and Mrs. Albert G. Beyer
Joseph Bohac Family
Mrs. Eleanor J. Booth
Mr. and Mrs. Jerome Brasch
Mrs. Dwight W. Coultas
Cindy Easterling
Jim and Susan Folkl
Mr. and Mrs. Warren Haberman
JCCA Preschool
Mr. and Mrs. W. Boardman Jones Jr.
Mr. and Mrs. James F. Joseph
Mr. and Mrs. Mark R. Lay
Mr. and Mrs. Clifford Lecoutour
Dr. and Mrs. Paul W. Miles
Claire Passer Family
Mr. Bob Peat
Shaare Zekek Preschool Staff
Southwick Veterinary Clinic

Mrs. Mae Schill
Belleview Park Garden Club

Miss Julia M. Schmidt
Miss Eugenia Henke

Mrs. Schuette
Marilyn Edmiston

Mrs. Virginia Seibert
Mr. Howard J. Wilkinson Jr.

Mrs. Bunny Shelton
Mr. and Mrs. John N. Ehlers

Mr. Edward J. Smith
Kris Emmons
Lisa Hirsh

Mrs. Esther Smith
Wayne and Virginia Jordan

Mrs. Phyllis Smyser
Mr. Michael S. Smyser

Mrs. Lucille Spengler
Mrs. Gloria M. Jones

Mr. Herman Stadin
Miss Marilyn L. Wind

Mr. Larry Stanton
Mr. and Mrs. Jerome C. Allen

Mrs. Mary Stepp
Mrs. Robert S. Mitchell

Dr. Julian A. Steyermark
Dr. Robert E. Magill
Missouri Botanical Garden—Lehmann Building Staff
Mrs. Jessica Ventimiglia

Eva Sticka
Mr. and Mrs. William B. Eiseman Jr.

Mrs. Sadano Taketa
Kay Shoji

Mr. Hilmer O. Tiemann
Mr. and Mrs. Charles E. Fritsche

Mrs. Kathryn Travis
Mrs. Jean Thomas

Mr. Frank Robert Trulaske
Dr. and Mrs. Charles O. Gerfen

Mr. William R. Tupper
Mrs. George W. Skinner

Mr. Thomas H. Wagner
Mrs. J. Gardiner Flint

Miss Miriam Waite
Mr. Roland R. Bauer Jr.

Mrs. Joan F. Watterich
Mrs. Kenneth Artinger
Mr. and Mrs. Victor Billhartz
Cancer Information Center Staff
Mr. and Mrs. Wilbur Fienup
Mr. and Mrs. Ardell Miller
Mr. John A. Watterich
Mr. and Mrs. Marc C. Weis

Mrs. Ruth A. Wemhoener
Mr. Charles F. Wemhoener

Dorothy Wiers
Hazel Maxwell

Mrs. Trudi Williams
Mr. Gil Williams

Willmann Family
Mr. Merlin F. Willmann

Mrs. Grace Wilson
Mr. and Mrs. Robert E. Kresko

Mrs. Alfred O. Woerner
Mrs. Henry C. Griesedieck
Mr. and Mrs. J. Leonard Walther

Mr. James W. Wright
Mrs. Lorraine Wire

Board of Trustees

Mr. Robert E. Kresko
President

Dr. Marguerite Ross Barnett
Rev. Lawrence Biondi, S.J.
Mr. Gerald D. Blatherwick
Mr. Stephen F. Brauer
Mr. William H. T. Bush
Mr. Jules D. Campbell
Dr. William H. Danforth
Mr. Samuel B. Hayes
Mr. Robert R. Hermann
Rt. Rev. William A. Jones, Jr.
Mr. David W. Kemper
Mr. Charles F. Knight
Mr. William E. Maritz
Mr. James S. McDonnell III
The Hon. Gene McNary
Mr. Lucius B. Morse III
Mrs. Fred A. Oberheide
Mr. William R. Orthwein, Jr.
Mrs. Vernon W. Piper
Mrs. Lucianna Gladney Ross
Dr. Howard A. Schneiderman
The Hon. Vincent C. Schoemehl, Jr.
Mr. Sydney M. Shoenberg, Jr.
Mr. C. C. Johnson Spink
Mrs. Walter G. Stern
Mr. Andrew C. Taylor
Dr. Joyce M. Thomas
Mr. John K. Wallace, Jr.
Mr. O. Sage Wightman III

EMERITUS TRUSTEES
Mr. Howard F. Baer
Mr. Clarence C. Barksdale
Mr. Joseph H. Bascom
Mr. John H. Biggs
Mr. Sam'l C. Davis
Dr. Thomas S. Hall
Mr. Henry Hitchcock
Mrs. Anne L. Lehmann
Mr. Joseph F. Ruwitch
Mr. Louis S. Sachs
Mr. Daniel L. Schlafly
Mr. Warren M. Shapleigh
Mr. Robert Brookings Smith
Mr. Tom K. Smith, Jr.
Mrs. Harriet Spoehrer
Mr. Harry E. Wuertenbaecher, Jr.

MEMBERS' BOARD
Mrs. Henry W. Dubinsky
President
Mrs. Rudyard K. Rapp
First vice president
Mrs. Antonio I. Longrais
Second vice president
Mrs. Robert J. Senkosky
Secretary
Mr. Frederick H. Atwood III
Treasurer

DIRECTOR
Dr. Peter H. Raven

東西融和

AUGUST 26 – LABOR DAY

15TH ANNUAL JAPANESE FESTIVAL

Sponsored by Fannie May Candies Foundation

The festival highlights traditional Japanese culture against the backdrop of the Garden's magnificent Japanese Garden, *Seiwa-En*, the "garden of pure, clear harmony and peace." This year the theme is "East Meets West," featuring traditional Japanese artforms with eastern and western influences.

The theme of cultural exchange also honors the 15th anniversary of the Sister City relationship between St. Louis and Suwa, Japan.

Festival highlights include:

- **"Kumadori: The Face of Kabuki."** A photo exhibit of the art of Japanese theatrical make-up.
- **Katazome and Tsutsugaki.** A demonstration of the ancient craft of fabric dyeing.
- **Kogin-Zashi.** A demonstration of the 250-year-old art of embroidery.
- **Tea Ceremony.** The traditional ritual is explained and performed.
- **Taiko drummers.**
- **Ikebana.** Traditional flower arranging.
- **Kabuki theater.**
- **Children's Day**, featuring the Candyman.
- **Suzuki violinists** from Suwa, Japan.
- **Candlelight walks.**
- And much more!

Festival Hotline opens Monday, August 21. Call 577-5198 for details.

MISSOURI BOTANICAL GARDEN BULLETIN (ISSN-0026-6507)
P.O. Box 299
Saint Louis, Missouri 63166

SECOND CLASS
POSTAGE
PAID
AT ST. LOUIS, MO

CENTENNIAL
Board of Trustees
1889 1989
Missouri Botanical Garden

Missouri Botanical Garden Bulletin

SEPTEMBER / OCTOBER 1989

VOLUME LXXVII
NUMBER FIVE

Inside This Issue

4 **Stupp Teacher Resource Center**
A helping hand for the entire community.

5 **Madagascar Officials Visit**
Collaboration promotes research and conservation; plus a profile of Porter P. Lowry II.

6 **History of the Membership**
The Garden's members celebrate their 50th anniversary with a fond look back.

8 **Home Gardening**
Searching for the perfect tree? Here are some fresh ideas.

9 **Plants at the Garden**
Facts and lore about oaks, including some of the Garden's most venerable trees.

11 **Centennial of the Board of Trustees**
A tribute to those who have served on the Board since its inception.

12 **Calendar of Events**
Lectures, tours, exhibits, flower displays and sales—autumn brings something for everyone.

14 **Ask the Answer Service**
Plan now for next season.

15 **From the Membership Office**
Highlights of current activities and plans for 1990.

20 **Tributes**

On the cover: The upper basin of *Seigan-no-taki,* the Blue Boulder Cascade, in the Japanese Garden.
—Photo by Richard Benkof

© 1989 Missouri Botanical Garden.

The BULLETIN (ISSN 0026-6507) is published bi-monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, MO 63110. Second class postage paid at St. Louis, MO. Subscription price $12.00 per year. $15.00 foreign.

The BULLETIN is sent to every Member of the Garden as one of the benefits of membership. For a contribution of as little as $40 per year, Members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and for course fees; and the opportunity to travel, domestic and abroad, with other Members. For information, please call (314) 577-5100.

Postmaster: send address changes to Susan Wooleyhan, editor, BULLETIN, P.O. Box 299, St. Louis, MO 63166.

Comment

Looking Toward the Year 2000

On November 7, the Garden will be asking the voters of St. Louis City and County to approve a 3.2 cent increase in its property tax rate from the present 2.8 cents to 6 cents per $100 of assessed valuation.

On behalf of the Garden, I am asking for your commitment and support in this important endeavor.

The Garden has matured significantly during the past decade. Increased tax support will make it possible to create a necessary balance between public and private support as we respond to our mission to increase and disseminate knowledge about plants and their aesthetic and environmental importance.

While the Garden has grown tremendously during this last decade, the expansion of programs and services has been undertaken carefully and cautiously. We believe the results of that growth have proven beneficial to the entire region. Since 1983 when the Garden joined the Zoo-Museum District, we have increased our involvement in the community through a series of programs and capital improvements aimed at increasing attendance, a growth in services, and a broadened scientific effort.

To maintain our programs in environmental education, to respond to public demand for increased educational and horticultural services, and to restore and sustain the historic structures, the Garden requires a higher level of public support. The present capital campaign will turn private dollars into new services for the public—but will not meet the needs of the Garden into the year 2000.

Because of our commitment to the future, we must act accordingly now by requesting an increase in our tax rate. A combination of the best human resources available and high quality physical structures, equipment and materials will allow the Garden to respond to community needs in the St. Louis area and environmental concerns of future generations.

Working together, with your enthusiastic endorsement, I am confident we can present our case for additional tax support to the public successfully.

Thank you.

Peter H. Raven

GOVERNOR ASHCROFT SIGNS LEGISLATION: On Wednesday, June 21, 1989, friends and supporters met at the Garden for a ceremony to sign the Zoo-Museum District Tax Legislation. (Standing, left to right): Rick Simoncelli; Charles Hoessle; Andrew Newman; Dennis Wint; Robert Kresko; Peter Raven; Representative Thomas Stoff; Edwin Trusheim; Senator John Bass; David Hyslop; Representative Laurie Donovan; and Morris Jacob. Seated: Governor John Ashcroft.

MISSOURI BOTANICAL
AUG 29 1989
GARDEN LIBRARY

Adult Education at the Garden

Tree and Shrub Identification class

Art class

FROM planting bulbs to pruning a Japanese Garden, from tasting durian to discussing tropical rain forest deforestation, the Garden offers adults a multitude of educational opportunities. In each of the past two years, approximately 2,500 students have registered for more than 100 courses. In spring and fall the education division teaches courses in gardening fundamentals and specialties. In the summer, classes provide opportunities for utilizing the Garden's superb living collection on the grounds.

For convenience, most adult classes are offered on evenings and Saturdays. A few classes are held during regular working hours to facilitate on-grounds instruction and provide educational opportunities for area professionals. All courses are taught by Garden staff and area specialists who are knowledgeable about the opportunities and limitations of gardening in St. Louis.

Most courses are designed for the practical home gardener, but classes in nature study, botanical arts and crafts, and environmental issues are also offered. General and introductory courses are recommended for beginners, and provide a sound basis for more detailed information. Specialized courses like "Pruning in the Japanese Style" or "Vines: An Untapped Dimension" provide advanced information for experienced gardeners who wish to pursue special interests. The Garden offers courses that pique many interests and present plants and the natural world from a variety of perspectives.

For instance, "Tree and Shrub Identification" is a ten-week summer course that offers participants an opportunity to learn basic identification skills first hand from area experts and Garden staff, utilizing the Garden's magnificent collection of woody plants. Access to so many different plants allows participants to "brush up" their identification skills on each visit to the Garden.

As all living things are connected in a web of life, so man and plants are connected in a global web of development and environmental concerns. Building upon the Garden's concern for environmental issues and its strong research program in the tropics, a new series of classes on tropical rain forests has been developed. Some of the classes explore the biological riches of tropical rain forests, the products man obtains from the forests, or the Garden's tropical research program. Other classes in the series explore the causes, effects, and solutions to tropical rain forest deforestation through studying the ecology of the forest and discovering the web of economic and political values that contributes to their destruction.

Out of one such class, a local education-action group, the Rain Forest Alliance, was born. It is an organization dedicated to learning more about tropical rain forests and to helping preserve tropical ecosystems.

And then there are always courses that are just for fun. One such class is "Thai Cuisine". We all know plants are important to us as food—we eat them every day. But how often do we get to sample and learn about the plants used in other parts of the world? In this class students sniff, sample, and taste the vegetables, fruits, and spices that make Thai cuisine distinctive, and discuss the role plants play in daily life. The course concludes with dinner at a local Thai restaurant. In addition, this fall a course will explore the plants and foods of natural cuisine.

Another new fall class, "Ornamental Yard Art," uses slides and discussion to consider the cultural significance of the whimsical decorations in our gardens. What does a pink flamingo really mean? Come find out.

From enjoying the sights, sounds, and tastes of nature, to learning how to start your own garden, to discussing critical environmental issues, the Garden's adult education program has something for everyone.

—Glenn Kopp, Adult Education Coordinator

Stupp Teacher Resource Center

A small library in the Ridgway Center is having a big impact on science education in St. Louis. "We help teachers to help themselves," says Pamela Pirio, coordinator of the Stupp Teacher Resource Center. "We provide information, reference and teaching materials to educators, including Garden staff and volunteers."

The Stupp Resource Center was established at the Garden in 1982. It takes the Garden's expertise in botanical research and ecology in the community, by helping teachers to enrich their own knowledge and skills and to pass that knowledge on to their students. "Concern with environmental issues is increasing every day," Pirio explained. "Teachers and students are looking for ways to supplement their opportunities to learn about natural science, both in and out of the classroom. We provide information and tools, and we also put them in touch with other organizations who can help."

Science fair winners from Most Holy Trinity School (top to bottom): Diane Brogan; Crystal Lada; Mrs. Vera Cooper, teacher; Jodie Dinsmore; Mark Feldhaus; Dana Massey; Christopher Aikin; Shellie Lada.

The Center is open in the afternoons, early evenings, and Saturday mornings—times convenient for busy teachers. Anyone is welcome to use the Center for reference, but only teachers and Garden personnel may borrow materials. The collection is organized on the Library of Congress system. The Center is a member of the St. Louis Regional Library Network, which includes public, school, academic, and special libraries.

The collection includes books, slide sets, videos, computer software (there is an Apple IIe computer and printer in the Center), botanical models, games, recordings, and modular programs in environmental education. Using these materials, plus initiative and enthusiasm, area educators have enriched students' learning in the classroom, and have developed a number of innovative programs.

Science Fair Winners In 1987, Most Holy Trinity School in St. Louis set a goal to excel in science education within three years. The school applied for Federal funds for teacher training, materials and supplies. Later, they set up an internal school science fair to give students experience in competition. Vera Cooper, one of the teachers at the school, recognized potential science fair project materials in the Stupp Center.

This year, for the first time, ten of Mrs. Cooper's students entered the Monsanto-St. Louis Post-Dispatch Science Fair at Queeny Park, and eight of the students won ribbons. One of the eight winners, eighth grader Mark Feldhaus, also won a first prize for his project "Achoo: Air Pollution and You" in the Missouri Junior Academy of Science regional competition held at Maryville College in April. His achievement on the regional level took him to the statewide competition at Joplin, Missouri later that month.

This is an extraordinary accomplishment for any school," said Pam Pirio, who worked closely with Mrs. Cooper. "Vera is a dedicated teacher who goes beyond the extra mile for her students."

Girl Scout Badge Program The River Bluffs Girl Scout Council of Illinois also utilizes the Center. Mary Griggs, program director, is working with Pam Pirio to develop a project based on the *Garden Explorer.* This is a series of worksheets published by the Garden, which leads children around the Garden grounds and introduces them to concepts in science and biology. After spending the day at the Garden completing the worksheets, the scouts will earn a badge.

Outdoor Classrooms Pirio is also working with St. Patrick's School in Wentzville to establish an outdoor nature study facility on the school grounds. With the help of the Missouri Conservation Department, school officials hope to develop a model program using outdoor resources to supplement classroom study. Another area school hopes to utilize a pond on its grounds where migrating birds gather.

Teacher Training One of the most important goals of the Center is to train teachers to be even more effective in the classroom. The Center is in a unique position to serve as a link between science and education professionals, using the resources and expertise of the Garden to enrich education in the community. Currently the Center is developing a special collection of information and a curriculum on the tropical rain forest.

The Stupp Teacher Resource Center is funded by the Norman J. Stupp Foundation. Contributions are welcome, and donations have been received recently in memory of Dr. Lawrence J. Pirio and Jerry Gers, a former volunteer at the Garden.

Garden Guides Elect New Officers

The Garden Guides have elected new officers for 1989-90. Audrey Allen and Helen Kuehling are co-chairmen; Roberta Dearing is secretary-treasurer; and Florence Hoey will schedule tours.

The Garden Guides gave tours to 14,000 children and adults in 1988. There are currently 60 active guides, and 33 guides each gave more than 100 hours of service last year. The Guides celebrated their 20th anniversary in 1988, and are continuing their tradition of serving the Garden and its visitors with friendly, educational and entertaining tours.

(Left to right): Voara Randrianasolo; Enrique Forero, director of research at the Garden; Léon Rajaobelina; Ignace Rakoto; Peter Raven; Porter P. Lowry II.

MADAGASCAR OFFICIALS VISIT GARDEN

In July, the Garden hosted the Minister of Higher Education of Madagascar, along with the Ambassador of Madagascar to the United States and the head of the Department of Natural History at Madagascar's Tsimbazaza Botanical and Zoological Park.

His Excellency Ignace Rakoto, Minister of Higher Education, Ambassador Léon Rajaobelina, and Dr. Voara Randrianasolo met with director Peter H. Raven and other Garden researchers to review progress under the 1983 collaborative agreement the Government holds with the Garden, and to discuss plans for future cooperation. The Garden provides assistance to the Government and scientists of Madagascar in studying and conserving the island's natural resources.

During the visit the officials signed an agreement that marks the official endorsement by the Ministry of a Master Plan for Tsimbazaza Park. The plan was developed by the Park's Department of Natural History, with the Garden's assistance. The agreement included a commitment on the part of the Garden to assist the Park in obtaining the resources necessary to achieve the goals of the plan.

Tsimbazaza Park is located in the capital city of Antananarivo, and is one of Madagascar's most popular cultural attractions. It is the island's only botanical and zoological park. The Master Plan emphasizes conservation education and the display of native plants and animals. "This plan will provide a framework for helping the park to become a world-class institution," said Dr. Porter P. Lowry II, the Garden's coordinator of the Madagascar Research Program.

The Garden began working in Madagascar in 1972. Since the collaborative agreement was signed in 1983, Garden researchers have been conducting basic research and exploration of the island's poorly known flora and establishing a comprehensive database of the plants of Madagascar. They also train and assist Malagasy botanists in modern research techniques and participate in conservation programs throughout the country.

PROFILE

PORTER P. LOWRY II

Assistant Curator

Dr. Porter P. Lowry II, assistant curator and coordinator of the Madagascar Research and Conservation Program at the Garden, has arranged a working situation most people would envy: while he takes frequent trips to Madagascar, he lives in Paris with his French wife Hélène Le Dantec-Lowry and their son Simon, and even manages to visit the Garden twice a year.

Lowry's affiliation with the Garden began in 1981, when he was a graduate student at Washington University. He began working in the Madagascar program after receiving his Ph.D. in plant systematics in 1986. Working with Lowry in Madagascar is Dr. George E. Schatz, the Garden's resident research botanist.

Madagascar, the world's fourth largest island, is slightly smaller than the state of Texas, yet it is very important botanically. Some 10,000 species of plants occur in Madagascar as compared to no more than 18,000 for the entire continental United States. Three-quarters of the island's plants are found nowhere else on earth; many of them have never been seen or studied by botanists.

But Madagascar's lush rain forests are being destroyed at an alarming rate as the growing population struggles to survive. "The fact that Madagascar has such a tremendous level of plant and animal diversity, coupled with the intense threat the country's native habitats are now facing, makes Madagascar one of the world's top conservation priorities," says Lowry. (See the *Bulletin*, March-April, 1989.)

Lowry and Schatz work closely with local Malagasy scientists. "Collaboration with our local counterparts is an integral part of all of our activities," he explains. "Our ultimate goal is to help provide them with the resources they will need to carry on the study and protection of their natural heritage."

Porter P. Lowry II

Above: Shown at a meeting at Tower Grove House are (left to right) Mrs. Joseph H. Bascom (Betty); Mrs. Sydney Shoenberg, Jr. (Jimmie); Mrs. John Macrae, Jr. (Jane); Mrs. John Hayward (Cynthia); Mrs. Edward L. Bakewell, Jr. (Jean).

Above, right: Signing the proclamation of Sunday at the Garden, May, 1969 (left to right): Mrs. Jason Alfring; Mayor A. J. Cervantes; Harry E. Wuertenbaecher, Jr., president of the Board of Trustees; and Mrs. Guy Oliver.

Benefit Tonight!
MISSOURI
BOTANICAL
GARDEN

At right: John Angus Ford playing the bagpipes outside the Ambassador Theatre at the premiere of "My Fair Lady."

1939 50 1989

Years of Membership

IN 1939, the Missouri Botanical Garden was in a time of transition. The Trustees, then in their fiftieth year of operating the Garden following the death of Garden founder Henry Shaw in 1889, faced severe financial problems. Shaw's bequest had been adequate a half-century earlier, but the Depression and the necessity of caring for aging facilities had drained the Garden's reserves.

Those difficulties meant the Trustees had to cut back on staff and decrease services. It also meant they had to delay opening the Arboretum, which then consisted of 1,300 acres near Gray Summit, Missouri. The Trustees had purchased the land in the 1920s with the intention of moving the Garden there after severe pollution in the city of St. Louis started killing the plants, many of them rare and valuable. The move became unnecessary after the city passed a smoke abatement ordinance and conditions improved, but the Trustees decided, nonetheless, to develop the Arboretum as an annex to the Garden. But the project was repeatedly set aside because of lack of funds.

In 1939, the Trustees hit upon the plan to develop the Arboretum as the Garden's 50th anniversary project. At their March meeting, they decided part of the money could come through the establishment of a fund to be called "Friends of the Garden."

The Friends, which solicited gifts of any size from a wide range of contributors, was the first fund of its kind in St. Louis. It was considered an experiment, and the Trustees were encouraged by the enthusiastic response. The Friends received $25,000 for the development of the Arboretum, a substantial amount given the day and the circumstances—a sum equivalent to almost $200,000 today. It was sufficient, taken with contributions from other sources, that the Trustees were able to open the Arboretum in 1941.

Although the "Friends of the Garden" began as a fund, it soon evolved into a membership organization. By 1946 the *Bulletin* referred to the Friends as a "group," and Friends were receiving the *Bulletin* as a benefit of their enrollment. The Garden continued to encourage the support of the community, and succeeded, in part due to the efforts of Dudley French, a Garden Trustee since 1937. In the mid-1950s French was instrumental in expanding the Friends' organization, and by 1960 an executive board was formed, with a secretary to the Friends listed on the Garden staff.

Over the years, the Friends has included or absorbed a succession of different groups, often simultaneously. Some of these were the Arboretum Improvement Fund Committee, the Friends of the Garden Fund, the Women's Committee of Shaw's Garden, the Women's Association of Shaw's Garden, Women's Executive Board of the Friends, the Women's Executive Board of the Members, and, finally, the Executive Board of the Members. Regardless of the name by which the organization was known, its purpose has remained the same throughout the 50 years—to serve the Garden diligently and to help the Trustees carry out the mission Henry Shaw established in his Will in 1889: ". . . having for the use of the public a Botanical garden . . . and to preserve the same to the use and enjoyment of the public for all time."

Above: The Members' premiere of the 1970 Orchid Show in the old Floral Display House.

Below: Carriage rides to Tower Grove Park were a highlight of the 50th anniversary celebration, July 23, 1989.

The Friends has always attracted wide-spread and solid support from the people of St. Louis. The Federated Garden Clubs of Missouri adopted the Friends as a pet project in 1939; seven years later, the 45 St. Louis area Kiwanis Clubs raised money for the Friends. In 1946, the group had 800 members; today the total is over 24,000.

Throughout its history, the organization has fostered and supported many significant programs at the Garden. There was the spectacular "Christmas at Tower Grove House" in 1956; the fabulous "Holiday Historique" the following November, featuring a miniature *Mayflower*; the flower show with Liberace for the Garden's centennial in 1959, and the gala opening of the Climatron in 1960. Five years later, there was a dinner and champagne party to celebrate the premiere performance of the Oscar-winning film *My Fair Lady* and, in 1973, the "Bal Orientale", an extravaganza that helped raise funds for the Japanese Garden.

In 1971, the Friends' Board was renamed "The Women's Executive Board of the Members" to reflect that the Garden has always belonged to the public.

In 1979, when the Garden was looking for funds for educational facilities in the new visitor/education building (now the Ridgway Center), the Members' Board devised the idea of collecting signatures for incorporation in a wall hanging; it was a very successful effort. In addition, the Members have worked hard to support the renovation of the Climatron, to help the Garden in its successful campaign for tax support, and by volunteering as researchers, clerks, Master Gardeners, guides and teachers. In 1988, volunteers contributed 67,681 hours of service to the Garden. On July 23, 1989, more than 4,000 Members and guests came to the Garden to celebrate Henry Shaw's 189th birthday and 50 years of Garden membership.

It is difficult to quantify the enormous effect the Members have had on the Garden over the past 50 years. In fact, there is not a corner of the Garden, not a single one of its services that has not been touched, in some palpable and positive way, by its Members. The Garden—and the community—are richer beyond measure for them. ■

(Condensed from a detailed history of the Membership program compiled by Mrs. Landon Jones and Geraldine Epp Smith, which is now held in the Missouri Botanical Garden Archives.)

Preservation Project

As part of the Garden's on-going program to maintain its sculpture collection, conservators from Washington University Technology Associates, Inc. (WUTA) recently replaced missing fingers and toes on the marble *Victory* figure. WUTA has worked with the Garden for many years to maintain the sculptures on the grounds, including routine cleaning and preventive maintenance.

To restore *Victory*'s fingers and toes, architectural conservator Theresa Callahan visited the Garden in June to make clay models of the missing pieces. The models were made to resemble *Victory*'s existing carving; Callahan also used photographs of previous restoration work on the statue. WUTA technicians made rubber urethane molds from the clay models, and cast the pieces in polyester resin mixed with marble dust and white pigment to match the existing stone. After the *Victory* was carefully cleaned, the new fingers and toes were invisibly attached with stainless steel and brass reinforcing pins and polyester adhesive.

Victory, carved in marble in 1885 by Carlo Nicoli, is a copy of a statue in the Pitti Palace. Commissioned by Henry Shaw and installed at the Garden in 1887, it bears the inscription "The Victory of Science over Ignorance". The statue stands in the limestone and glass building just north of the Shaw Mausoleum, and is a highlight of the Garden's sculptural treasures.

Conservators from WUTA attached *Victory's* new fingers in mid-July.

H·O·M·E GARDENING

CHOOSING A PERFECT TREE

by Steven D. Cline, Ph.D.

This article is the first written for the Bulletin *by Steven D. Cline, who came to the Garden this year as manager of the Center for Home Gardening. Dr. Cline was introduced in the May/June 1989* Bulletin.

My fifth grade class attended an outdoor Conservation Day and all the kids were given a tiny evergreen seedling in a paper cup. 25 years later, after surviving extremes of a northern climate, misguided lawnmowers, constant shade for 15 years, waterlogged soil and one crude transplantation, this Colorado Blue Spruce is the pride and joy of my parents' front yard. It must be the perfect tree.

'PERFECTION'

Almost everyone wants an ornamental tree around their property to make it more attractive. Yet few of us realize that trees also increase land value by an average of 10 to 15 percent. Trees decrease cooling costs by as much as 60 percent, screen objects, accent garden views, absorb noise, secure privacy, freshen the atmosphere and prevent soil erosion. The perfect tree can do all this, while enduring temperature extremes from –20° to 105°F, and drought like the summer of 1988.

When choosing the perfect tree, you should consider its eye appeal, ability to provide shade, and possible use as hedge or border. What are its foliage and flower colors, seed and fruit production, wood strength, height and width at maturity, light and wind exposure, soil, water and drainage requirements? And if that's not enough, make your choice fast growing and free of insect and disease problems. Sounds like a tall order.

SELECTION

To help simplify matters, a few trees should be avoided altogether. Box elder, cottonwood, tree-of-heaven, mimosa and black cherry have very brittle wood that can create a public hazard. Mulberry, persimmon and female ginkgo produce very soft fruits that stain, make the sidewalk slippery, have an unpleasant smell or attract insects. A number of other trees are not popular because of objectionable seed pods, exfoliating bark or prominent insect and disease problems.

We're all familiar with the selections of oaks, maples and ashes that are widely planted in St. Louis. The table below suggests some less familiar trees with excellent characteristics for our Midwestern climate.

WHERE AND WHEN TO PLANT TREES

The most common mistake is to plant the right tree in the wrong place. It is difficult to know how large your selection will be at maturity, especially if you are starting with a two-foot seedling. Generally, medium sized trees should go no less than 15 feet from a building foundation. This distance should be doubled for larger shade trees. Avoid plant areas with overhead wires, stay at least five feet away from walks and low retaining walls, and move away from underground pipes.

The best time to plant a tree depends upon the type of nursery stock you purchase. Bare-rooted trees should be planted in the fall after leaves drop or before they have broken dormancy in the spring. Trees that come balled and burlapped can be planted anytime during the year. If planted in the fall (September-October) when soil temperatures are 60° to 70°F, new root growth will have time to get established and will support the plant during the winter. Container-grown plants are even more tolerant of planting schedules, provided they have a good fibrous root system. Broad-leaved evergreens are usually transplanted in the spring. Evergreens in general are moved earlier in the fall and later in the spring than deciduous plants.

Desirable Trees for the Midwestern Climate

Common Name (Botanical Name)	Height in Feet	Shape	Growth Rate	Light Needed	Moisture Needed	Comments
Amur Cork Tree *(Phellodendron amurense)*	30′	Spreading	Fast	Sun	Dry	Pest free, almost any soil, low maintenance, drought resistant, good city tree
European Hornbeam *(Carpinus betulus)*	35′	Fastigate	Slow	Sun	Dry to Moist	Pest free, low maintenance, good for screens & tall hedges, tolerates acid & alkaline soils; 'Fastigiatia'
Japanese Pagoda Tree *(Sophora japonica)*	50′	Spreading	Medium to Fast	Sun	Medium to Moist	Flowers July-August, good city tree, handsome foliage; 'Regent'
Sorrel tree (sourwood) *(Oxydendrum arboreum)*	45′	Pyramidal	Slow	Sun to lt. shade	Moist to Dry	Summer-flowering tree with fall color; best in deep, slightly acidic soils; an excellent flowering tree
Japanese Zelkova *(Zelkova serrata)*	60′	Vase Shaped	Fast	Sun	Moist to Wet	Good substitute for American Elm in form; drought resistant; growth habit is unique; good fall color; 'Village Green'
Ginkgo *(Ginkgo biloba)*	100′	Broad oval	Slow to Medium	Sun	Medium	Prefers deep soil but will tolerate any situation; no pests; brilliant yellow fall color; avoid female trees
Yellowwood *(Cladrastris kentuckea)*	50′	Globe	Fast	Sun to lt. shade	Moist	Tolerates many soil types and does well in alkaline soil; drought resistant; good city tree; prune after flowering
Japanese Tree Lilac *(Syringa reticulata)*	30′	Vase Shaped	Medium	Sun	Moist	Beautiful bark; cherry colored; can be adapted for street tree; formerly *S. amurensis* 'Japonica'
Kentucky Coffee-tree *(Gymnocladus dioicus)*	60′	Broad oval	Medium	Sun	Medium	Adaptable to wide range of growth conditions including alkaline soils, drought and city air; no pest problems
Bald cypress *(Taxodium distichum)*	130′	Pyramidal	Medium	Sun	Wet to Dry	Soft appearance, tolerates wet and dry conditions; relatively pest free, requires large space

Plants at the Garden

Oaks

About 600 species of oaks exist, scattered mostly around the Northern Hemisphere. North America, where oaks are the predominant trees over vast areas, is home to 80 species, Missouri to about 20, and the Missouri Botanical Garden to about 15 species (plus some youngsters in the nursery and a couple of hybrids). Many of the Garden's most venerable trees are oaks.

Oaks comprise about two-thirds of the oak family (Fagaceae), which also includes beeches, chestnuts, and some less familiar trees and shrubs. Members of the oak family characteristically form nuts associated with a bumpy to prickly cover (called a cupule) made up fundamentally of numerous highly modified, tiny, leafy structures. In oaks the cupule is the scaly, bumpy, or fringed cap on the acorn. In beeches and chestnuts it is a spiny husk enclosing the nuts; in the latter, the spines are branches and formidably needlelike.

The strength, beauty, and durability of oak wood have been recognized since ancient times, and some ancient oak wood is still useful. That is, bog oak, which is prized for modern decorative carving, is pulled as well-preserved logs out of the British peat bogs. According to some interpretations, Caesar's army dumped the logs there in 55 B.C. for exercise and to spite the local inhabitants.

The woods of some oaks are waterproof—the water-conducting "veins" that let most woods leak are clogged with balloonlike growths called tyloses in wood from white oak (*Quercus alba*) and other species. Such self-caulked oak woods once became Roman aqueducts and more recently wound up in barrels and boats. English oak (*Quercus robur*—see one at the south end of the Lehmann Rose Garden) was the main shipbuilding material when British mariners ruled the waves. Entire English oak trunks were needed for the main beams of ships and, not surprisingly, big English oaks became precious in England, especially those free of the fungal infections that often afflict big trees. Fungi on the living tree continued to grow and weaken the wood after the tree became part of a ship. A sailor once sank such an enfeebled ship with the punch of his fist, or so the story goes. Oak still has a place in vessels of exploration: Chinese scientists made heat shields for space reentry vehicles from oak.

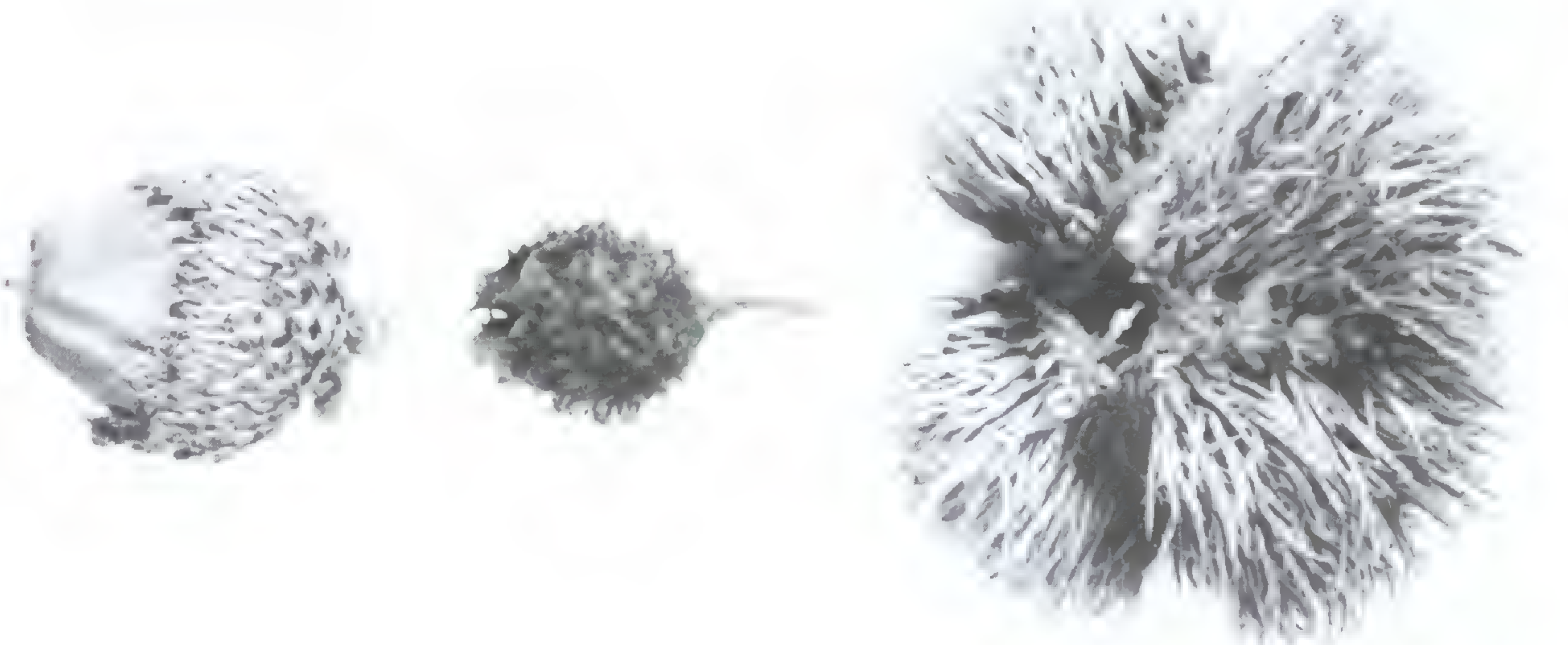
Are acorns edible? Marginally, after treatment. American Indians powdered acorns and buried the resultant meal in sandy stream bottoms to wash it free of bitter contents. They ate the acorn meal along with the sand, with unfortunate dental consequences.

In the spring you may come across the flowers, which are tiny, inconspicuous, and pollinated by the wind. The male flowers are arranged in long, dangling clusters called catkins. The female flowers are in small, scaly clusters with the pollen-catching stigmas extending antennalike from among the scales.

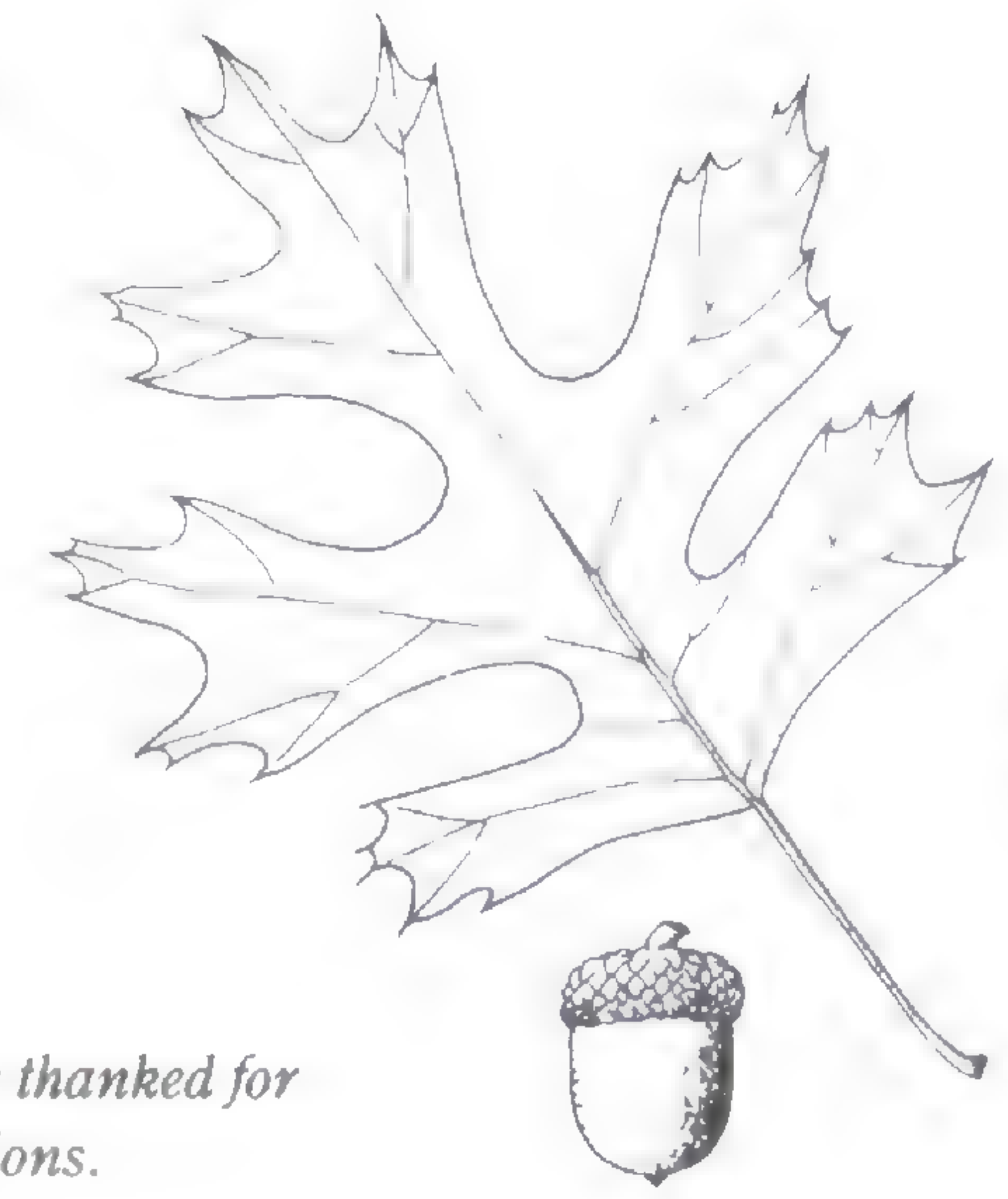
Among the most spectacular oaks at the Garden are three trees growing gloriously in the open: a large shumard oak (*Quercus shumardii*) just south of the Museum Building; a splendid bur oak (*Q. macrocarpa*), with jumbo acorns in the lawn south of the Woodland Garden; and a scarlet oak (*Q. coccinea*) in the Daylily Garden. Having unoaklike strap-shaped leaves, a willow oak (*Q. phellos*) is north of the Lehmann Building. All of these are Missouri natives. For an exotic experience, wander northwest of the Lehmann Rose Garden and find two Asian sawtooth oaks (*Q. acutissima*), and find their frilly acorn caps in the fall.

Exploring the Garden makes learning the native Missouri oaks easy, and once you know them, you will feel familiar with half the trees you see in town or in the forest.

—George Rogers, Ph.D.



(Above, left to right): Acorn with cap from bur oak *Quercus macrocarpa;* husk from beech nut *Fagus sylvatica;* and chestnut bur, *Castanea dentata*, (nuts within).



Shumard oak *(Quercus shumardii)*

Margaret Dykens is thanked for the superb illustrations.

The CAMPAIGN for the Garden

UPDATE: As of July 31, 1989 the Garden's capital campaign has raised $15,230,332 in gifts and pledges.

Board Approves Campaign Expansion to $18 Million

The renovation of Flora Gate got underway this summer.

The Missouri Botanical Garden's Board of Trustees has announced additional plans to strengthen visitor services by upgrading a group of key facilities. These improvements will be funded by increasing the goal of the current capital drive, the Campaign for the Garden, to $18 million.

"We have a pressing need to ensure that the Garden's facilities are maintained at the highest level," said Robert E. Kresko, President of the Board and Chairman of the Campaign. "We have a large and diverse campus, and more than half of our structures are of an historic, irreplaceable nature. Several years ago, we thoroughly analyzed the Garden's capital needs and developed an extensive list of necessary maintenance and improvements. Correspondingly, we must work to attract ongoing support for the care of these facilities and the programs they make available to increasing numbers of visitors each year."

Kresko said the gratifying response to the capital drive thus far has created a welcome opportunity to expand the original $16 million goal: "We are still working with a number of individuals and organizations to obtain commitments. This, coupled with our important needs, has encouraged us to set our sights higher." Completion of the fund raising effort has been rescheduled for December 31, 1990.

The additional improvements are:

—The renovation of Flora Gate, the Garden's historic original entryway, for use by groups;

—The lakeshore stabilization program undertaken two years ago for the Japanese Garden, a major attraction;

—The recent expansion of the Garden Gate Shop's book section;

—The purchase of a tram for visitor tours; and

—Initial design costs for a major new display area to feature the Garden's boxwood collection.

These items join the campaign's original components: the renovation of the landmark Climatron and new construction of a Temperate House, an Interpretive Center on the Tropics, the Visitors' Pavilion of the Center for Home Gardening, and production greenhouses. ■

FANNIE MAY IS HONORED: A reception was held at the Garden on July 18, 1989, honoring the Fannie May Candies Foundation for its community involvement and many fine contributions to non-profit institutions in St. Louis and Missouri. For the fourth year, Fannie May Candies Foundation is sponsoring the Garden's 15th annual Japanese Festival, August 26 - September 4. Shown at the reception, left to right (back row): Martha Morrow; Richard Cassin; Alan W. Petrik; Richard M. Peritz, vice president, Fannie May Candies Foundation; Mark Mesenbrink; Peter H. Raven; John E. Hughes, president, Fannie May Candies Foundation. (Front row, left to right): Sandy Ventimiglia; Jean Mathes; Tamra Raven; Mary Alice Ciampa; Jean D. Thorne, executive director, Fannie May Candies Foundation.

Dr. Peter H. Raven (left), accepting the fifth contribution on Union Pacific Foundation's $50,000 pledge toward the renovation of the John S. Lehmann Building from Kenneth Morrill, vice president for customer service, Union Pacific Railroad.

Board of Trustees 1889-1989

September 10, 1989, marks the centennial of the first official meeting of the Garden's Board of Trustees.

Henry Shaw's will named the individuals who became the first Trustees (two died before Shaw). Shaw also appointed five *ex officio* Trustees to serve by virtue of their office: the Chancellor of Washington University; the Bishop of the Episcopal Church of the diocese of Missouri; the Presidents of the Public Schools and the Academy of Science of St. Louis; and the Mayor of St. Louis. In 1981 the Board added a new *ex officio* Trustee, the President of St. Louis University, and in 1988 the Board added two *ex officio* Trustees, the Chancellor of the University of Missouri-St. Louis and the St. Louis County Executive.

Shaw's will also appointed Asa Gray of Harvard University and Spencer Baird, secretary of the Smithsonian Institution, as "honorary Trustees . . . in recognition of their scientific eminence and ability." Although Gray and Baird predeceased him, the courts have held that Shaw did in fact create two such positions, though they have never been filled. In honor of the centennial, the Board recently named two distinguished scientists to assume the position of Honorary Trustee: Professor Phillippe Morat, director of the Laboratoire de Phanérogamie, Muséum National d'Histoire Naturelle, Paris; and Dr. Mildred Mathias, professor emeritus, University of California, Los Angeles. Their position as Honorary Trustees is distinct from Emeritus Trustees, who were referred to as "honorary" or "advisory" before 1981.

The Garden salutes the men and women who have served with skill and dedication during the past century.

Presidents of the Board of Trustees

Lackland, Rufus J.	1889-1910
Kaime, David F.	1910
Whitaker, Edwards	1910-1926
Eliot, Edward C.	1926-1928
Hitchcock, George C.	1928-1947
Lockwood, Richard J.	1947-1953
Lehmann, John S.	1953-1958
Smith, Robert Brookings	1958-1962
Hitchcock, Henry	1962-1967
Wuertenbaecher, Harry E., Jr.	1967-1970
Whitehead, C. Powell	1970-1973
Bascom, Joseph H.	1973-1975
Smith, Tom K., Jr.	1975-1981
Spink, C. C. Johnson	1981-1984
Biggs, John H.	1984-1989
Kresko, Robert E.	1989-

Missouri Botanical Garden Life, Term, and Current *Ex Officio* Trustees as of August 1, 1989

Baer	Howard F.	1959- (Emeritus 1980-)
Barksdale	Clarence C.	1964- (Emeritus 1988-)
Barnett	Dr. Marguerite Ross	1988-
Bascom	Joseph H.	1971- (Emeritus 1989-)
Biggs	John H.	1983- (Emeritus 1989-)
Biondi	Rev. Lawrence, S.J.	1987-
Blatherwick	Gerald D.	1988-
Blumeyer	Arthur A.	1928-1930
*Branch	Joseph W.	1889-1903
Brauer	Stephen F.	1988-
Breck	Daniel	1927-1932
Bush	William H. T.	1982-
Campbell	Jules D.	1970-
Carter	L. Ray	1928-1952
Catlin	Daniel K.	1926-1964
*Collier	M. Dwight	1889
Danforth	Donald, Jr.	1982
Danforth	Dr. William H.	1971-
Davis	Samuel C.	1920-1940
Davis	Sam'l C.	1960- (Emeritus 1977-)
Drake	George S.	1890-1895
Eliot	Edward C.	1903-1928
Engelmann	Dr. George J.	1889-1895
Faust	Leicester Busch	1954-1979 (Emeritus 1973-79)
French	Dudley	1937-1976 (Emeritus 1960-76)
Glaessner	Oscar E.	1926
Goodson	Richard A.	1965-1971
Green	Dr. John	1896-1913
Hall	Dr. Thomas S.	1982- (Emeritus 1983-)
Hayes	Samuel B.	1989-
Hefferman	George F.	1932-1934
Hermann	Robert R.	1966-
Hitchcock	George C.	1903-1947
*Hitchcock	Henry II	1889-1902
Hitchcock	Henry	1947- (Emeritus 1974-)
Holland	Leonard J.	1965-1971
*Johnson	Dr. John B.	1889-1903
Jones	Rt. Rev. Wm. A.	1975-
*Kaime	David F.	1889-1910
Kemper	David W.	1987-
Knight	Charles F.	1985-
Kresko	Robert E.	1981-
*Lackland	Rufus J.	1889-1910
Lasater	Donald E.	1968
Lehmann	John S.	1941-1967 Emeritus 1965-67)
Lehmann	Mrs. Anne L.	1984- (Emeritus 1984-)
Lockwood	Richard J.	1941-1959
Loeb	Stephen H.	1982-1983
*Madill	Judge George A.	1889-1901
Maffitt	P. Chouteau	1914-1919
Maffitt	Thomas S.	1922-1940
Mallinckrodt	Edward	1915-1928
Maritz	William E.	1980-
Mathias	Dr. Mildred E.	1989- (Honorary 1989-)
Matthews	Leonard	1895-1923
McDonnell	James S. III	1983-
McNary	The Hon. Eugene	1988-
Meyer	A.C.F.	1924-1928
Miller	Charles F.	1889-1891
Moore	George T.	1929-1954
Morat	Prof. Phillippe	1989- (Honorary 1989-)
Morey	Richard	1925-1927
Morse	Lucius B. III	1986-
Norvell	Saunders	1910-1915
Oberheide	Mrs. Fred A.	1984-
Orthwein	William R.	1975
Otto	Robert W.	1958-1963
Perkins	Albert T.	1926-1936
Pettus	Eugene	1932-1957
*Pettus	William H.H.	1889-1922
Pflager	Henry B.	1955-1967
Piper	Mrs. Vernon W.	1981-
Primm	A. Timon III	1964-1988 (Emeritus 1980-88)
Roe	Charles A.	1918-1925
Ross	Lucianna Gladney	1978-
Ruwitch	Joseph F.	1988- (Emeritus 1988-)
Sachs	Louis S.	1980- (Emeritus 1985-)
Scanlon	Philip C.	1911-1931
Schlafly	Daniel L.	1961-63, 1972- (Emeritus 1982-)
Schneiderman	Dr. Howard A.	1981-1993
Schoemehl	The Hon. Vincent C.	1981-
Shapleigh	A. Wessel	1936-1957
Shapleigh	Warren McKinney	1958- (Emeritus 1985-)
Shepley	Ethan A. H.	1930-1954
Shepley	John F.	1901-1929
Shoenberg	Sydney M., Jr.	1972-
Smith	Dr. David S.H.	1902-1925
Smith	Robert Brookings	1952-1963 (Emeritus 1981-)
Smith	Tom K., Jr.	1963-1964, 1967- (Emeritus 1988-)
Smith	Wayman F. III	1982
Spink	C. C. Johnson	1974-
Spoehrer	Mrs. Harriet	1985- (Emeritus 1985-)
Stern	Mrs. Walter G.	1985-
Switzer	R. W.	1917-1918
Taylor	Andrew C.	1989-
Thomas	Dr. Joyce M.	1988-
*Treat	Judge Samuel	1889-1890
Ulrici	Gerald	1935
Wagner	Stephen M.	1926-1927
Wallace	John K.	1982-
West	Robert C.	1981-1986
Whitaker	Edwards	1902-1926
Whitehead	C. Powell	1965-1981 (Emeritus 1975-81)
Wightman	O. Sage III	1983-
Wuertenbaecher	Harry E., Jr.	1963- (Emeritus 1987-)
*Yeatman	James E.	1889-1901
Zeibig	Fred B.	1928-1936

*Members of original Board of Trustees, 1889

Missouri Botanical Garden

CALENDAR OF EVENTS

September-October 1989

東
西
融
和

Sponsored by Fannie May Candies Foundation

SEPTEMBER 1-4 / Japanese Festival

15th Annual Festival continues, 9 a.m. to 8 p.m. daily (until 10 p.m. on evenings with Candlelight Walks). "East Meets West", with Kabuki, music, Taiko drummers, exhibits of arts and crafts, and more! Funds for some activities provided by the Missouri Arts Council, a state agency. A complete schedule of events is available at the ticket counter, or call 577-5198.

WALKING TOURS
Now All Tours Begin at 1:00 p.m.

Join us every Tuesday, Saturday and Sunday at 1:00 p.m. for a tour led by Garden Guides. Enjoy autumn foliage and learn about architecture, history, sculpture and horticulture at the Garden. Meet at the Ridgway Center ticket counter. Free with regular Garden admission.

SEPTEMBER 14 / MEMBERS' DAY
Tower Grove House Day

10 a.m. to 4 p.m., Tower Grove House and grounds. Enjoy a nostalgic day from another era. The Victorian charm of Tower Grove House will be on display with house tours throughout the day. Tea and cookies, informal modelling of Victorian fashions, music, and more. Free, for Members only. No reservations required. *See flyer mailed recently to all Members.*

OCTOBER 27 / MEMBERS' DAY
"Missouri Botanical Garden History"

A Lecture with Dr. and Mrs. Peter H. Raven, 1 p.m. and 7:30 p.m., Shoenberg Auditorium. Dr. and Mrs. Raven will provide a fascinating look at Garden history. Tickets are free to Members, and will be available at the Ridgway Center ticket counter on Wednesday, October 25. Seating is limited.

SEPTEMBER

1 FRIDAY

Children's Day at the Japanese Festival

9:00 a.m. to 5 p.m., Ridgway Center and grounds. Events especially for children will take place throughout the day. Suzuki violinists from Suwa, Japan; storytellers, folk dancers and magicians; origami, and fish printing. Free with regular Garden admission.

5 TUESDAY

Winter Hours Begin

9 a.m. to 5 p.m. daily, through Sunday, May 27, 1990. The Garden is closed Christmas Day.

9 SATURDAY

Brazilian Naive Art

9 a.m. to 5 p.m. daily through October 8, Ridgway Center. A representative collection of 40 colorful, dynamic paintings by eight recognized Brazilian artists. Sponsored by Partners of the Americas and the Missouri Arts Council. Free with regular Garden admission.

9 SATURDAY

continued

Centennial Gala with Bobby Short

Reservations are required and av ability is limited. Call 577-9500 fo information.

16-17 SAT.-SUN

Men's Garden Clubs Display

Noon to 5 p.m. Saturday; 9 a.m. to 5 p.m. Sunday, Ridgway Cent A display by the Greater St. Lou Men's Garden Clubs. Free with regular Garden admission.

18 MONDAY

Plant Clinic

9 a.m. to noon, Ridgway Center. Bring your ailing plants or just yo questions for free, expert horticu tural advice on gardening, house plants, tree and lawn care. Free with regular Garden admission.

19-21 TUESDAY THURSDA

Fall Bulb Sale

9:00 a.m. to 7:30 p.m., Tuesday and Wednesday; 9:00 a.m. to 6:3 p.m. Thursday; Garden Gate Sho and Monsanto Hall. Members receive 20% off on all plants, gift and merchandise. Bulbs and harc mums are on display in Monsanto Hall. Regular Garden admission.

23 SATURDAY

Brazilian Cultural Day

Noon to 5 p.m., Ridgway Center. Events for the entire family, inclu ing storytelling, lectures and film on Brazil. Free with regular Gard admission.

23-24 SAT.-SUN

Garden Clubs of America Shov

9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall. A display by several of America's garden clubs Free with regular Garden admission.

TUESDAY

aritable Giving Seminar

30 a.m., Garden Room, Ridgway nter. One of a series of seminars ered as a service to Members by e Planned Giving program. An tate planning specialist discusses ar-end tax planning. Reservations e required. Free. *See page 19.*

FRIDAY

rdens and Parks of the orld Lecture Series

.m., Shoenberg Auditorium. A ries of slide lectures on famous rdens and parks around the world, noted experts. (Topics to be nounced.) Admission at the door: 50 Members, $2 non-members.

2 THURSDAY

owers from the yal Gardens of Kew: o Centuries of *Curtis's tanical Magazine*

.m. to 5 p.m. daily through vember 26, Ridgway Center. A ebration of the 200th anniversary of *Curtis's Botanical Magazine*, featuring works rarely seen by the public. These illustrations, from the 18th to the 20th century, combine beauty and scientific accuracy and were selected from the Royal Botanic Garden's collection of more than 100,000. Free with regular Garden admission.

13 FRIDAY

Gardens and Parks of the World Lecture Series

7 p.m., Shoenberg Auditorium. (Topic to be announced.) See October 6 for details.

14 SATURDAY

Seeking the Reasonable Compromise

10 a.m. to 3 p.m., Ridgway Center. A symposium on environmental and development issues in the Third World, sponsored by the Garden with the University of Missouri-St. Louis and the Greater St. Louis Returned Peace Corps Council. $15 for Members, $20 non-members, $10 for students. Call 577-5140 for a program flyer.

COMING IN NOVEMBER

HOLIDAY PREVIEW SALE

NOVEMBER 1-3 / Garden Gate Shop

9 a.m. to 7:30 p.m. Come to the Garden Gate Shop for your early holiday shopping and receive 20 per cent off all plants, gifts and books. Refreshments will be served. Watch your mail for details.

FALL FLOWER SHOW

NOVEMBER 3 / Members' Preview

5 to 8 p.m., Ridgway Center. A glorious array of chrysanthemums and seasonal blooms in a setting reminiscent of Old Sturbridge Village. Music, cash bar, and fashions from Burberry of Plaza Frontenac. A Burberry raincoat will be awarded as an attendance prize. For Members only; watch your mail for details.

14-15 SAT.-SUN.

Gesneriad Society Show

Noon to 5 p.m. Saturday, 9 a.m. to 5 p.m. Sunday, Ridgway Center. A display of plants from the family that includes the African Violet. Free with regular Garden admission.

19 THURSDAY

Gardens and Parks of the World Lecture Series

7 p.m., Shoenberg Auditorium. (Topic to be announced.) See October 6 for details.

THIS FALL AT SHAW ARBORETUM

The Autumn Prairie

Photographs by William Davit, Staff Naturalist

With the return of cooler weather, Shaw Arboretum is an inviting place for a brisk autumn hike or a long, leisurely ramble. Turning leaves, ripening fruits, seedpods and late-blooming wildflowers color the twelve miles of trails through woodlands, meadows and prairie.

The prairie trail is particularly appealing in September and October. The native grasses reach their full height in August and gradually turn color in the fall to muted shades of gold, brown and wine red. Bright crimson sumac leaves and tall Maximilian sunflowers splash color throughout the prairie. Later, the sunflower seedheads are irresistible to goldfinches, which flock to feed on them and speed away in undulating flight at a hiker's approach.

Dewy spiders' webs, suspended from the tall grasses, inspire early morning photographers in September. At sunset, the view from the observation deck at the top of the hill always induces a mellow mood. Later afternoon sunlight enhances the warm colors of the native grasses while insects buzz lazily among the sunflowers, goldenrods and asters.

Come explore all the trails at the Arboretum. The grounds are open from 7 a.m. until half an hour past sunset, every day. The loop road is open to vehicles on Wednesdays and Thursdays, through November 9. The Wilderness Wagon again will provide narrated tours of the Arboretum on Sundays, September 10 through October 5.

—Joyce Davit, Arboretum Staff

Ask the Answer Service

Moonflowers and Mums

Do you have a plant question? Call the Horticultural Answer Service, Monday through Saturday, 9 a.m. to noon, at **577-5143.**

Q. My Southern Belle rose mallow grew very well this year in my garden. How should I care for it now? Is it hardy?

A. The Southern Belle hybrid, *Hibiscus moscheutos*, is hardy outdoors here in the St. Louis area, but should receive a light mulch after the ground freezes later this fall. When frost blackens the stems, cut them back close to the ground. Leave a few stems a little long to serve as location markers for next spring. Southern Belle is one of the last perennials to begin to grow in spring and the long stems are a reminder that the plant is not dead, just tardy.

Q. I like the idea of starting herb seeds in late summer to provide young plants for indoor use in winter. However, I find parsley seed to be exasperating! Do you have any tips on how to get parsley to sprout any faster?

A. There is no getting around the fact that parsley is a real slowpoke when it comes to sprouting. Parsley seed contains compounds that actually inhibit germination, expecially in the presence of sunlight. For this reason always be sure to cover your seed with ¼ to ½ inch of soil when you sow parsley. Prechilling the seed for several days in the refrigerator may also aid sprouting. Most important, always soak parsley seed overnight before planting. Some of the seeds' germination-inhibiting compounds are water soluble and will dissolve, allowing faster sprouting. Of course, be sure you discard the water used for soaking the seeds.

Q. I'm enjoying the blooms on my hardy chrysanthemums, and I'd like to keep them for next year. What is the best way to help them survive the winter?

A. Some mums are hardier than others. In order to ensure their survival over the winter, cut the foliage down and dig the plants up after they finish blooming. Replant your mums in a cold frame and cover them with a loose blanket of leaves or straw.

Lacking a cold frame, wait until the ground freezes, cut your mums back, and cover them lightly with an inch or two of straw. Apply this mulch loosely to avoid smothering the plants. It is crucial that the dormant mums spend the winter in a well-drained site, as heavy soils and overly wet conditions spell trouble.

Q. My Moonflower was covered with flowers each evening this summer. Will its seeds be the same as the parent plant? Can the seeds be saved for next year?

A. Moonflower (*Ipomoea alba*) seeds can be saved and will reproduce true to form. The Moonflower vine presents gardeners with a dilemma. It requires a long growing season to produce viable seeds and it is often mid-summer before these plants even begin to bloom, much less ripen seeds. Since you grow Moonflowers for their delightfully scented blossoms, it is best to keep the seed pods picked off to maximize flower production and purchase fresh seeds each spring.

Q. I grew vegetables this summer for the first time and really enjoyed myself. Is there anything that I can do now to improve my crop next year?

A. Vegetables are only as good as the soil they are growing in, and autumn provides abundant opportunities for improving the soil. Till all your disease-free and pest-free crop residues into the ground, including summer mulches. If any compost is available, till it in also. Sow a cover crop of annual rye grass or field (grain) rye. The shield provided by cover crops prevents winter soil erosion and provides the easiest means of adding large amounts of organic matter to the land. And if you haven't already done so, set aside a storage area near your garden where you can stockpile autumn leaves and other organic matter for use in next years' compost.

Q. Should I mulch my newly planted spring bulbs as soon as I plant them?

A. It is a good idea to mulch newly planted bulbs, but this should be delayed until the ground crusts over with frost. Mulches have a number of benefits. They make garden areas look attractive and well kept. By controlling weeds, they also make the garden easier to maintain. Moisture conservation is an added bonus, but perhaps one of the greatest advantages of mulch is insulation. Our winter weather inevitably fluctuates between freezes and thaws. During the thaws bulb foliage often begins to grow prematurely. By mulching your bulbs after the ground freezes you will modify the shifts in soil temperature levels lessen the damage to the bulb foliage as the winter progresses.

TIMELY TIPS

- Peonies can be cut back and divided anytime in September. Discard the foliage, to reduce the risk of spreading disease. When replanting the roots, choose a well-drained, sunny site that has been enriched with a generous amount of organic matter. Set the roots so the growth "eyes" are just slightly below the finished grade.
- Plant spring bulbs as soon as they are available. Tulips should not be planted until soil temperatures drop in late October or November.
- Mid-September through mid-October is an excellent time for reworking lawns. Kill weeds, mow, rake, dethatch, aerate, and seed bare spots. Turf-type tall fescues work best in the St. Louis area.
- Established lawns should receive moderate fertilization in September and again in October.
- Spring flowering perennials can be divided at this time.
- Houseplants should be moved back indoors by mid-September.
- Fall is an excellent time for planting trees, shrubs and evergreens. Be sure to water and mulch well to promote rapid establishment.
- Pumpkins are ready for harvest when the skin is hard and the color has darkened. For best storage, always harvest with an inch or two of stem attached.

—Chip Tynan, The Answer Service

FROM THE MEMBERSHIP OFFICE

50-YEAR MEMBERS ARE HONORED: A luncheon at the Garden on July 21, 1989, paid tribute to 50 years of Garden membership by honoring some of the individuals who have been Members since the beginnings of the membership program. (Standing, left to right): Jack Eidelman; Elinor Eidelman; Mrs. Thomas MacDermott; Mrs. Bernard Blomberg; Florence Morris Forbes. (Seated, left to right): Mrs. James Canavan; Mr. James Canavan; Grace Richardson; Ruth Richardson; Elfridea Pistrui and Charles Pistrui. Not pictured: Mr. and Mrs. H. Lee Schnure, Jr.

CENTENNIAL VISIT: As a highlight of the Garden's May tour of England in honor of the Centennial of the Board of Trustees, the group visited Sheffield, birthplace of Henry Shaw. At the Sheffield Botanical Garden, the Lord Mayor of Sheffield, Phyllis Smith, and Dr. Peter H. Raven, director of the Missouri Botanical Garden, unveiled a bronze plaque and planted a tree in honor of Henry Shaw. The tree is an elm, specially developed in Wisconsin to resist Dutch Elm disease.

1990 Travel Program: Ireland in the Spring

Members will have the opportunity to tour "Castles and Gardens of Ireland" next May. Watch for details on this marvelous trip!

Encore!

Famous-Barr Benefits the Garden

Through the sponsorship of Famous-Barr Company, the Garden will celebrate the 100th Anniversary of its Board of Trustees on Saturday, September 9.

The Board of Trustees will be honored guests at the black-tie benefit, "Encore!" The evening will begin with cocktails at 6:30 p.m., followed by dinner at 8 p.m. The legendary Bobby Short will provide the evening's entertainment, with the Ritz providing dance music.

"The generosity of Famous-Barr has made it possible to bring Bobby Short, the nation's most celebrated cabaret performer, to the Garden," said Ellen Dubinsky, president of the Members' Board. "Bobby Short performed at the Garden benefit in 1983 and was truly delighted to be asked to return," said Dubinsky. "Everyone is looking forward to his 'Encore'."

Robert Friedman, president of Famous-Barr Company, stated that Famous-Barr has long demonstrated strong support and sponsorship of civic, non-profit organizations' events such as the Garden celebration. "St. Louis is a wonderful city whose cultural institutions are a source of pride for all its citizens," said Friedman.

For benefit details, call 577-9500.

1990 Members' Garden Tour

Next June, Members will again be invited to tour some of the most beautiful private gardens in St. Louis. The Members' Board is in the process of identifying spectacular St. Louis area gardens for the 1990 Garden Tour and would appreciate your help! If you know of a "very special" garden, please call Brenda Banjak, Membership Coordinator, at 577-9517.

FORERO VISITS FIELD STATIONS

Dr. Enrique Forero, the Garden's director of research, has begun a series of visits to the field stations the Garden maintains in various tropical countries around the world. In recent months he has traveled to Costa Rica, Madagascar, Tanzania and Ecuador, and he plans trips to Bolivia and Panama soon. In each location Forero observes the work of Garden scientists and confers with local officials about current and future cooperative projects.

"Learning first hand about our field programs is one of my highest priorities," Forero said. "These visits help me to gain an appreciation of the difficulties our researchers deal with so successfully. Getting to know these dynamic scientists better gives me an enormous appreciation of their achievements. Their devotion and enthusiasm are contagious!"

Costa Rica

In Costa Rica, which Forero visited in early March, Dr. Michael Grayum and Dr. Barry Hammel coordinate a collaborative project with the Museo Nacional de Costa Rica to prepare a Manual of the Flora of the country, with support from the U. S. National Science Foundation. Dr. William Haber, the third Garden scientist in Costa Rica, is doing research at Monteverde Cloud Forest Reserve. Forero traveled with Grayum to visit La Selva Biological Station and Guanacaste National Park.

Madagascar

During early May, Forero spent ten days in Madagascar, with Dr. Porter P. Lowry II and Dr. George E. Schatz. Roy Gereau, another Garden botanist, was also in Madagascar carrying out an environmental impact study under contract with QIT, a Canadian mining company. Forero visited the Parc de Tsimbazaza in Antananarivo, the country's capital, and traveled with Lowry and Schatz to visit two projects, Nosy Mangabe, and the Masoala Peninsula Research and Conservation Project. (See the *Bulletin*, September-October 1988.) Forero was able to admire the rich local flora and to compare it with the flora of the American tropics with which he is most familiar. Forero, Schatz and Lowry collected several exciting plant specimens, including samples from a couple of 70-foot trees, thanks to Schatz' skill as a tree climber. (For more on the Garden's program in Madagascar, see page 5.)

Tanzania

Forero's next stop, before returning to St. Louis, was the east African country of Tanzania, where Jon Lovett is the Garden's resident botanist. Lovett's knowledge of the vegetation of Tanzania is nationally and internationally recognized. (See the *Bulletin*, March-April 1987.) Lovett has spent ten years of his life collecting and studying the plants of Tanzania. In addition to being involved in several research and conservation projects, he is currently collecting plant material for screening by the U.S. National Cancer Institute as part of an on-going contract that has included collecting efforts by other Garden botanists in Cameroon, the Central African Republic and Gabon.

A nine-hour drive from Dar-es-Salaam to the Garden's field station in Mufindi was the highlight of the visit to Tanzania, taking Forero and Lovett through a variety of vegetation in this botanically rich country. They drove through a national park where elephants, zebras, giraffes and other wild animals stood idly by the road, or imperturbably walked across it.

Ecuador

After a few hectic weeks in St. Louis, Forero was again on his way in early June. This time he visited the field station in Ecuador, where two Garden scientists, Dr. Calaway Dodson and Dr. David Neill, have established one of the Garden's most active and successful field programs. Currently they supervise four field teams who work mainly in Eastern Ecuador. In addition, Dodson carries out research on the orchid family (Orchidaceae) both in Ecuador and in neighboring Colombia, and concentrates his field work in the western part of Ecuador. Dodson and Neill have established two research centers, The Rio Palenque Science Center in the lowlands of western Ecuador, and Jatun Sacha Biological Station on the Amazonian side of the Andes.

Forero's visit included discussions with local officials regarding the recently approved debt swap for nature (see the *Bulletin*, July-August 1989). In three very busy days, Neill, Dodson and Forero participated in a number of meetings involving government officials, representatives from universities, conservation organizations, the US-Agency for International Development, the Ecuadorian Museum of Natural History, and oil company executives. A visit to Jatun Sacha had to be cancelled due to the poor state of the roads resulting from heavy rains. However, a two-day trip to Rio Palenque Science Center, where one of the last remnants of tropical forests in western Ecuador is being protected, was a highlight of Forero's week-long stay in Ecuador. The highway leading to Rio Palenque is in very good condition, and the forest is spectacular.

Summarizing his travels, Forero concluded, "It is largely thanks to the combined activities of field-based and St. Louis-based scientists and support staff, under the leadership of Peter Raven, that the Missouri Botanical Garden's program of research, exploration and conservation in tropical countries is considered to be the best and most active in the world today."

Garden Receives $250,000 for Flora of North America

The Garden is delighted to announce that The Pew Charitable Trusts have awarded a second grant to the Flora of North America project. The grant, amounting to $250,000 over the next two years, will support administration of the project, meetings of the editorial committee, publication of the FNA Newsletter, and purchases of computer equipment for the FNA Organizational Center housed at the Garden.

Flora of North America is a bi-national cooperative project designed to gather and make available information on all vascular plants (ferns, fern allies, gymnosperns, and flowering plants) growing spontaneously in North America north of the U.S.-Mexico political boundary. Over the next twelve years the project will produce a twelve-volume printed Flora and develop an associated computerized database. The project's Convening Editor is Dr. Nancy R. Morin, head of the Garden's Department of Botanical Information Management. FNA's Organizational Center is housed at the Garden, and members of the Editorial Committee are stationed at their home institutions throughout the U.S. and Canada.

P·R·O·F·I·L·E

ROBERT E. MAGILL

Associate Curator of Bryophytes

The department of bryology (the study of mosses) at the Garden is easy to overlook, tucked away in the Administration Building. But it is a very important part of the Garden's research program. Bob Magill has been head of the department since last year, but his work with the collection dates back to 1975, when he came to the Garden as a postdoctoral fellow and research assistant to Dr. Marshall Crosby.

Bob is a native of Fort Worth, Texas, and earned his Ph.D. in botany at Texas A & M University in 1975. In 1976 Bob went to Africa to teach and study, and returned to the Garden in 1982 as an assistant curator of bryophytes. He is a specialist in the mosses of Africa, and heads the Flora of Tropical Africa project. He has also contributed two of a projected four volumes to the Flora of Southern Africa.

The Garden's herbarium collection of mosses contains more than 166,000 specimens, an outstanding resource that includes many previously uncollected species. The huge number of specimens permits study of variations within species.

In addition to his work with mosses, Bob plays a central role in the development of the Garden's TROPICOS computer database system. When development of TROPICOS began five years ago, Bob was the only member of the research staff with experience in programming computers, so, in addition to his research on mosses, he became programmer and systems developer for the Garden.

"TROPICOS is unique in the way it integrates specimen-based data with taxonomic nomenclature," he points out. "This makes it possible to integrate information about plants, their names, and their distribution in really useful ways."

BRYOLOGISTS MEET AT GARDEN

Fifty-three scientists convened for the International Association of Bryologists meeting held at the Garden, July 31 to August 3, 1989, to discuss the latest research in tropical bryology. More than half of the bryologists attending were from foreign countries. There are relatively few bryologists in the world. The 53 participants who attended the meeting represented nearly half of all researchers in tropical bryology, and made the gathering a significant event. Bryology is the study of mosses and liverworts.

There are only 10,000 to 12,000 species of mosses in the world, as compared to approximately 250,000 species of flowering plants. Mosses are often considered insignificant because they have few commercial uses. Yet they are found worldwide in all habitats, including deserts. Perhaps more than any other plant, mosses can survive extremes in environment; they are the most common land plants in the Arctic and Antarctic.

Mosses are primitive plants, and they differ from flowering plants in two major ways. In mosses, the dominant green, leafy growth is the gametophyte, or reproductive phase of the plant. In flowering plants, the situation is reversed, with the gametophytic parts of the plant being reduced to a few cells in the pollen or ovules. Mosses also lack vascular tissue; they absorb water directly into their leaves.

Mosses play an important role in tropical ecosystems: they help regulate water flow by absorbing water before it can soak into the ground, which keeps the water from running off into rivers and streams. Tropical mosses gradually release the water into the ecosystems, keeping rivers flowing and providing life-giving moisture during dry periods. The mosses also aid in the breakdown of organic materials into nutrients needed by other organisms in the forest.

Tropical deforestation is of deep concern to scientists, conservationists, and many others who are looking for ways to avert impending environmental disaster. "If we are going to save the forests we must study and understand all the components of the tropical ecosystems, including mosses," said Dr. Robert E. Magill, Associate Curator and head of the Department of Bryology at the Garden.

"It's like a jigsaw puzzle: if you're missing a piece it can't be complete."

Jeff DePew Is Named Earthwatch Field Representative

Jeffrey C. DePew, coordinator of the Garden's Henry Shaw Academy, has been named as a volunteer field representative for the international nonprofit organization Earthwatch.

As a field representative, DePew will promote Earthwatch in Missouri. He will recruit new members through exhibits and events and arrange meetings for local Earthwatch volunteers in the St. Louis area. DePew hopes to develop Earthwatch expeditions with the Garden's botanical research program in the tropics. Earthwatch currently has over 850 members in Missouri. Dr. Peter Raven, director of the Garden, serves the organization as a scientific advisor.

Earthwatch is an international volunteer organization that offers members of the public the opportunity to join research expeditions to help noted university scholars with their fieldwork. Founded in 1971 to serve as a link between the public and the scientific community, the organization to date has involved more than 20,000 men and women in research expeditions in 36 states and 83 countries. This year, Earthwatch will send over 3,000 volunteers into the field working in disciplines as diverse as climate change, rain forest biology, endangered species, and archaeological exccavations. More than 670 scholars in the earth, marine, and life sciences and the arts and humanities have been assisted by Earthwatch volunteers.

(Standing, left to right): Joanna Turner, Joyce Knobbe, Yolanda Taylor, Anita Siegmund. (Seated, left to right): Peter Raven, director; Mim Kittner; Jeanne McGilligan, volunteer coordinator.

Volunteers from the Membership Services Desk (standing, left to right): Sue Oertli, Sue Rapp, John Roedel, Marie Davis, Jeanette Neuner, Polly Raith, Lillian Biggs, Frank Becklean, Betty Jones, Larry Thilking, Joe Jones, Pat Becklean, Mim Kittner. (Seated, left to right): Mary Ellen Roedel, Bill Richardson, Marilyn Heneghan, Marian Thilking.

VOLUNTEER EVENING

Tuesday evening June 13, 1989, the Garden hosted its annual reception honoring outstanding volunteers for their service during the past year.

Joanna Turner, a volunteer in the research division, received the Special Achievement award for her work on the Flora of Missouri: Joanna, an exceptional amateur botanist, started volunteering at the Garden in 1985. Last year she contributed 596 hours.

The Special Service award went to **Joyce Knobbe**, who works with the volunteer office in the Human Resources division. Joyce began volunteering at the Garden in 1980, and since then has been responsible for organizing and scheduling special projects volunteers and performing clerical tasks. She also works on most of the special projects.

Yolanda Taylor and **Anita Siegmund** received commitment awards. Yolanda works with the Master Gardeners and the volunteer instructors; Anita has been a tour guide in Tower Grove House for 17 years.

Special recognition went to the volunteers who staff the **Membership Services and Information Desk**. This group, under the direction of Mim Kittner, greets visitors, answers questions, sells memberships, and provides a friendly and accessible ear to anyone who comes to the Garden. In 1988 the Desk sold more than 2,000 Garden memberships.

The Garden is the showplace it is today because of our magnificent volunteers and their extraordinary contributions. The Members and the staff are deeply grateful for their dedicated service.

Henry Shaw Academy Explorers Return to Jamaica for Tropical Field Study

In June, the 1989 Explorer field study students traveled to Hofstra University Marine Lab Site in Jamaica. After nine months of studying field ecology and field research methods through Missouri and in the Smoky Mountains, students were well trained to travel to an international tropical location. The Jamaica field study program combined fun and intense learning experiences. Students studied marine ecology and tropical biology which included snorkeling and diving around coral reefs, night excursions to tidepools, hiking in tropical mist forests and studying Jamaica's culture and history.

The 2nd expedition to Jamaica was the final field study trip of the 1988-89 Explorers. The programs offers a full year's credit in high school elective biology to students who attend the monthly sessions and satisfactorily complete independent field projects and journals. Students who have completed the 1988-89 course are: Tim Tharp, Sarah Brockmann, David Guarria, Haskins Hobson, Martin Boonkham, Mark Heyde, Chris Boche, Jessica Ciccolella.

The Explorer Program is for 14 to 18 year old students who already have a background in general science or biology. It uses field research methods to study the diversity of the earth's ecosystems. Explorer students attend monthly weekend field trips to caves, prairies, forests, glades, rivers and mountains. The program runs from September through June, and participation is limited. There are currently openings for the 1989-90 school year. Interested students may call Jeff DePew, coordinator/instructor at 577-5135 for an application and information. Some scholarship money will be available.

Henry Shaw Academy

Henry Shaw Academy

The Henry Shaw Academy offers students aged seven and older exciting and creative ways to investigate topics in science, ecology and natural history. Academy students pay an application fee which includes free Garden admission for a year and entitles them to participate in seasonal classes held at the Garden, Shaw Arboretum and local parks. Classes this fall include day and overnight river trips, creating personnel herbariums, studying tropical rain forests, wolves at the Wolf Sanctuary, science fair projects and more. Classes are held on Saturdays and weekdays after school. MoBot members are eligible to apply to take HSA courses at a reduced fee. Watch for further information.

Bust of Linnaeus Given in Memory of Alma A. Shoenberg

A bronze bust of Carl Linnaeus, the father of plant classification, has been installed at the northeastern corner of the John S. Lehmann building, in memory of Mrs. Sydney M. Shoenberg, Jr.

In 1753, Linnaeus, a Swedish naturalist, published his monumental work *Species Plantarum*, which has become the official starting point for plant nomenclature. Henry Shaw named the Linnean House in his honor.

The new bust of Linnaeus was created by sculptor Paul Granlund, who also created the Garden sculpture "Zerogee." A generous donation by Mr. Shoenberg and additional contributions from family and friends have made the work possible. Mrs. Shoenberg was an active Garden volunteer and her husband, Sydney, has served as a member of the Board of Trustees since 1972. Mrs. Shoenberg's daughter, Mrs. Walter Stern, also serves as a Trustee and is a past president of the Members' Board.

Over the past several years, the Shoenberg Foundation, composed of members of the Shoenberg family, has generously supported the Garden and has made possible such features as the Shoenberg Fountain at the south end of the Garden, and the Shoenberg Auditorium in the Ridgway Center.

From the Garden Gate Shop

1990
Missouri Botanical Garden C

1990 Calendars

Garden members will be pleased to hear the Missouri Botanical Garden 1990 calendars are on sale now in the Garden Gate Shop.

The 16 inch by 12 inch full-color calendar features 40 photographs by St. Louisan Jack Jennings. The calendar lists hundreds of historical facts about the Garden, St. Louis, botany and the United States. A color poster, dedicated to the memory of Julian Steyermark and describing the Garden's research program in the tropics and the Euphorbiaceae family, is included as well.

Calendars are only $9.95 each, with the proceeds benefitting the Garden.

Autumn Bulb Sale—20% Off

Tuesday, Wednesday and Thursday, September 19-21, 9:00 a.m. to 7:30 p.m. (Sale ends at 6:30 p.m. on Thursday.)

Come to the Garden for a wonderful Fall Sale, featuring a spectacular array of Holland flower bulbs and hardy mums in Monsanto Hall. Members save 20 percent, all three days.

In the Shop you'll discover all merchandise on sale at 20 percent off. Gifts and garden items are featured, plus our expanded book department. Watch your mail for more details.

1990 Calendar Order Form

Please send me ______ Missouri Botanical Garden Calendars at $9.95 each (plus $2.50 postage and handling).

NAME ______

ADDRESS ______

CITY ______ STATE ______ ZIP ______

TELEPHONE ______

☐ Enclosed is my check for $______.
Payable to: Missouri Botanical Garden

☐ Please charge:
VISA/MC No. ______

Expiration date ______
Name as it appears on card:
______

Mail to: Missouri Botanical Garden
Garden Gate Shop
P.O. Box 299, St. Louis, MO 63166

Planned Giving

Seminar Offered

The Planned Giving Program has scheduled a Charitable Giving Seminar for October 3 at 9:30 a.m. in the Garden Room at the Ridgway Center. The seminar is one of a series of planned giving programs designed to provide information about charitable gifts, taxes, and financial planning. The object of the series is to make the content of the current tax laws available in an easy to understand format and language for lay persons. This seminar will be devoted to the topic of charitable giving as it may affect year-end tax planning. The October date allows time to study the information and to make plans before the end of the 1989 fiscal year on December 31. The seminar will be led by an estate planning specialist.

Garden members and friends are welcome with no obligation and can reserve a place by calling Ernestina Short at 577-9532, or by returning the form below to her at P.O. Box 299, St. Louis, MO 63166.

Planned Giving Seminar

Return to: Planned Giving, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166.

Name______

Address______

Phone______

Number of persons in my party______

☐ I would like more information on planned giving options. Please have Ernestina Short contact me.

So that the information can best be tailored to my needs, my age is:

☐ under 35 ☐ 35 - 54 ☐ 55 or over

Boxwood Nursery Is Moved

During June and July the Boxwood Nursery was moved a short distance to the west to make way for construction of the Center for Home Gardening next spring. The move was supported by a very welcome gift from the Boxwood Society of the Midwest, whose dedicated members tend the boxwood collection (see the *Bulletin*, May-June 1988).

Robert Bowden, the Garden's director of horticulture, said, "In their new home across the hill, the boxwoods should flourish. With the Society's expert care they will, without a doubt, continue to prosper awaiting their moment of glory in their own boxwood garden. We are very grateful for the Society's help and support."

News from Tower Grove House

Mrs. Walter D. (Marie) Schmitz has been a member of the Historical Committee since February, 1986. Marie has been invaluable to the Committee, helping to develop a philosophy for future restoration of the House and assisting in redecoration. The Committee has benefitted from her experience as the former Registrar at the Missouri Historical Society; she also taught at the University of Missouri-St. Louis and was on the Education Department staff at the St. Louis Art Museum when it was the City Art Museum. Tower Grove House and the Historical Committee will lose a respected and dedicated member when Marie and her husband, Walter, move to Burlington, Vermont.

Garden Calendar a Visual Delight

The 1990 Missouri Botanical Garden Calendar, with outstanding color photographs by Jack Jennings, offers exciting views of some of the Garden's most well known scenes. With each passing season recorded in an original photograph, the calendar presents year round visual reminders that have satisfied Garden members and visitors alike.

Mrs. William H. Schield of St. Louis, an admirer of the Garden, provides generous annual support for the printing of the calendar. Her long-time enthusiasm for the Garden and interest in the calendar are occasion for her to share her special fondness for the unique beauty found within the Garden.

Moving? Please Remember To Send Us Your New Address.

To avoid missing any of your membership mailings, you *must* give us your new address at least three weeks *before* you move. Please enclose the mailing label on the back cover of this *Bulletin*, and mail to: Membership Office, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166.

Tributes

MAY-JUNE 1989

In Honor Of:

Mr. and Mrs. Barry Abrahamson
Mrs. Bernard F. Dickmann
Mrs. Edward Koplar
Mrs. Florence G. Stern
Mrs. James Wolf

Frank and Adele Adam
Miss Dorothy M. Hanpeter

Mr. and Mrs. Lester Adelson
Mr. and Mrs. Bernard A. Barken

Mrs. Jeanne Ansehl
Mr. Jack Ansehl
Suzanne Lasky

Mr. and Mrs. James Aransman
Miss Doris E. Wolff

Mr. and Mrs. Frank Arnoldy
Mr. and Mrs. C. A. Case Jr.
Mr. and Mrs. Elmer W. Wiltsch

Mr. Howard F. Baer
Mr. and Mrs. Harold Pfister

Mr. and Mrs. G. Duncan Bauman
Mr. and Mrs. Wayne L. Millsap

Mr. and Mrs. Norbert Boesewetter
Mr. and Mrs. Roy R. Dressel

Mr. and Mrs. Jack Bussey
Mrs. Edward L. Martin

Mr. Phillip Cady
Mr. and Mrs. Stephen H. Loeb
Mr. and Mrs. Charles Tober

Mrs. Nancy D'Arcy
Missouri Botanical Garden—Guides

Margaret Derrick
Jeanne H. Liberman

Charles and Ruth Dunn
Mrs. Doris Grattendick
Mr. and Mrs. John J. Riganti

Marilyn Ellis
Hoe and Hope Garden Club

Mrs. Harry Esserman
Mr. and Mrs. Jerome M. Steiner

Mr. and Mrs. Ray Fellwock
Miss Grace T. Weber
Mrs. Leslie F. Weber

Mr. and Mrs. Henry Hafner
Mrs. Forrest Boecker

Mr. and Mrs. Clifford Hardin
Mr. and Mrs. Murray Weidenbaum

Mr. and Mrs. Harlan Harshbarger
Mrs. Robert H. Kittner

Mr. and Mrs. Roger Hebrank
Mr. and Mrs. Bernard A. Barken

Mr. and Mrs. Harvard Hecker
Mr. and Mrs. Joseph O. Losos

Miss Sandra Heins
Mrs. Marie Leibengood

Mr. and Mrs. George Heinz
Mr. and Mrs. Donald O. Schnuck

Mrs. June Hutson
Grass Roots Garden Club

Mrs. James Lee Johnson
Mr. and Mrs. Joseph H. Bascom
Mr. and Mrs. Robert Brookings Smith

Mr. and Mrs. Albert H. Judd
Ms. June E. McCarthy

Dr. Maurice Keller
Mr. and Mrs. Henry W. Dubinsky

Dr. Ida Kodner
Mr. and Mrs. Blanton Whitmire

Mr. Meyer Kopolow
Dr. and Mrs. Harry I. Berland

Mr. and Mrs. Larry Lewin
Mr. and Mrs. Richard Proctor

Mrs. Marian Jeane Lewin
Mrs. Selma G. Seldin

Mrs. Clarissa Start Lippert
Pi Chapter Delta Kappa Gamma

Mr. Bernard Mellitz
Mrs. Samuel D. Soule

Tony and Madeline Micale
Anthony, Jeff, Laura, Patti Micale

Dr. and Mrs. Frede Mortensen
Miss Grace T. Weber
Mrs. Leslie F. Weber

Edwin and Esther Mueller
Mr. and Mrs. Leonard R. Kantor

Mrs. Thomas F. Neher
Dr. and Mrs. Anthony R. Montebello

Mrs. Robert Nellums
Claybreakers Garden Club

Mrs. Rita Niccum
Clarence and Mary Willenborg

Mr. and Mrs. Charles A. Niekamp Jr.
Mrs. Ilse Mansbacher

Dr. F. Thomas Ott
Mr. and Mrs. Blanton Whitmire

Mrs. Betty Jane Ozmat
The Ozmat Children

Mary Ann and John Parker
The O'Donnell Family

Mrs. Raymond W. Peters II
Mr. and Mrs. Richard T. Grote

Mr. and Mrs. Marvin Pierson
Mrs. William P. Schorr

Mr. and Mrs. Homer V. Price
Norman and Virginia Eshbaugh
Mr. and Mrs. William Schmitt
Madeline Sheltman

Mr. and Mrs. Tony Puricelli
Mr. and Mrs. John K. Travers

Mrs. Louis Putzel
Mr. and Mrs. Charles J. Cook

Dr. and Mrs. Peter Raven
Mr. and Mrs. Harold Pfister

Mrs. Robert Rosenheim
Mrs. Jane A. Jacobs

Mr. and Mrs. Jerome Rubenstein's Grandson, Matthew
Gloria B. Cotlar

Mr. Louis S. Sachs
Mr. and Mrs. Herbert M. Talcoff

Mr. and Mrs. William Schliebe
Mr. and Mrs. Orville F. Huster

Mr. and Mrs. Julius Schwartz
Mrs. Ruth Schwartz

Mr. Joseph H. Schweich
Mrs. Iris F. Meyerhardt
Mrs. Edward F. Schweich
Mr. and Mrs. Robert J. Schweich
Mrs. Ben H. Senturia

Mrs. A. Forest Seay
Mr. and Mrs. Donald F. Barr
Mr. and Mrs. Robert Burke

Mrs. Herman Seldin
Mr. and Mrs. Myron Glassberg

Mr. and Mrs. Don Silverstone
Mr. and Mrs. Harold N. Kravin

Mr. James A. Singer
Mrs. Ben H. Senturia

Mr. and Mrs. James A. Singer
Mr. and Mrs. Jeffrey Demerath

Mrs. Samuel D. Soule
Mr. and Mrs. Lester R. Adelson
Mrs. Harry Agress
Mrs. Ruth Bettman
Mr. and Mrs. Dan Bluestone
Dr. and Mrs. Max Deutch
Mr. and Mrs. Aaron Fischer
Mrs. Henry L. Freund
Mrs. Alan Goldberg
Mrs. John Isaacs Jr.
Mr. and Mrs. Henry C. Lowenhaupt
Mrs. Milton Meyerhardt and Family
Mrs. Hubert C. Moog
Mr. and Mrs. Louis R. Putzel
Mr. and Mrs. Paul Fusz Ring
Mr. and Mrs. Edward F. Ruprecht
Mr. and Mrs. A. A. Scharff Jr.
Mr. and Mrs. Roger Schwab
Mrs. Walter Sears
Mrs. Ben H. Senturia
Dr. and Mrs. Oscar H. Soule, Adam and Sarah

Mr. and Mrs. Henry Stolar
Mr. and Mrs. Joseph O. Losos
Dr. and Mrs. William A. Murphy Jr.
Mr. and Mrs. Joseph L. Tucker

Mr. and Mrs. Ed. Stolle
Miss Grace T. Weber
Mrs. Leslie F. Weber

Dr. and Mrs. Alfred Sudholt
Mrs. Carl F. Kottmeier

Mr. and Mrs. Alvin Dubois Vitt
Mr. and Mrs. Richard J. George

Mr. and Mrs. Vernon Wendt
Mr. and Mrs. Wayne L. Millsap

Marilyn Werner
Mr. and Mrs. Donald F. Roth

Mr. and Mrs. Gerald V. Williamson
Mr. and Mrs. Aaron Fischer

Mr. Richard J. Wolfheim
Mr. and Mrs. Edward F. Ruprecht

In Memory Of:

Mr. C. S. Acuff
Mr. Craig Williamson

Mrs. Amelia S. Agnew
Mr. and Mrs. Glenn Ziemann

Mr. Wilbert S. Anderson
Mr. and Mrs. Joseph C. Waldner

Ms. Cleo Aydelotte
Mr. and Mrs. Douglas Wixson

Mr. George Bakker
Mr. and Mrs. Warren R. Kunstman

Mrs. Harriet Balk
Mrs. Audrey Swinford

Mr. Edwin J. Banstetter
Mr. and Mrs. Fred W. Praechter

Mr. T. Ellis Barnes
Mr. and Mrs. Joseph H. Bascom
Mr. and Mrs. Andrew H. Baur
Dr. and Mrs. James T. Chamness
Mr. and Mrs. Auguste Chouteau
Mr. and Mrs. Charles J. Cook
Mr. and Mrs. Carroll F. McMahon
Mr. and Mrs. Warren M. Shapleigh

Mr. Harry Alvin Baumstark
Mr. and Mrs. Thomas H. Ryan

Mr. Virgil Behrman
Ms. Joan Esposito

Mrs. Helen Battle Bemis
Mr. and Mrs. William M. Graves III
Mr. and Mrs. Robert W. Mecker
Mrs. Roland O'Bryen
Mr. and Mrs. Emmanuel C. Paxhia
Mrs. T. W. Pidgeon
Jane, Dave Simmons and Family
Dr. and Mrs. John S. Skinner
Washington Terrace Association
Mrs. Geraldine M. Werner

Mrs. Dorothy Birk
Mr. and Mrs. William B. Crowder
Mr. and Mrs. William R. Gould
Mrs. Norma M. Silber
Friends at St. Albans
Mr. and Mrs. Walter G. Stern

Miss Mary Blackburn
Mr. John E. Blackburn
Miss Dorothy Gardner
Ralph and Mary Frances Pate
Ms. Margaret Sheppard
Mr. William J. Tucker Jr.

Mr. William Bock
Ms. Ruth E. Buerke
Mr. Frank M. Bush
Ms. Barbara Nease Cook
Mrs. N. Ingaborg Cushman
Mr. and Mrs. Jim Daus
Mr. and Mrs. James B. Fleming
Mr. and Mrs. Ron Hanson
Mr. and Mrs. Hugo H. Harper
Mr. and Mrs. Oliver D. Hogan
Mr. and Mrs. Roland R. Hogan
Miss Elise Kiesel
Mr. and Mrs. Carlisle D. Kinyon
Mrs. Robert H. Kittner
Mr. Donald W. Klein
Mrs. William H. Leyhe Jr.
Mueck Auto Body Company
Mueck Auto Body Company Employees
Mr. and Mrs. Kenneth W. Musbach
Jack and Ann Oxley
Mr. and Mrs. John W. Pflueger
River Bend Repertory Company
Mr. and Mrs. John H. Snyder
Mrs. Carl O. Wettig

Mrs. Clara M. Boemler
Mr. and Mrs. William H. Boemler Jr.

Mrs. Virginia Boldt
Mr. and Mrs. Edward P. Sullivan

Mr. Thomas Bond Jr.
Mr. and Mrs. Henry Hitchcock

Mrs. Elvira Bopp
Mr. and Mrs. Roger W. Shaw

Mrs. Esther Bortscheller
Mr. and Mrs. Richard H. Bauer
The Friend Family
The Hazel Family
Mr. and Mrs. Jordan Heiman
The Pate Family
Mr. Ray Rucker
Mr. and Mrs. James C. Wachtman
Mr. and Mrs. Bill R. Woolbright

Miss Muriel Braeutigam
Mrs. Geraldine Epp Smith

Mrs. Theresa Bratkowski
Mr. Fred J. Rock

Mrs. Dorothy E. Bremerkamp
Mr. and Mrs. J. Cliff Blake

Mr. Louis G. Brown
Mr. and Mrs. James B. Law

Ms. Doris Mae Burchard
Mr. and Mrs. Bruce A. Ploetze

Mrs. Ora Burkhart
Mr. and Mrs. Charles W. Freeman

Mrs. Rose Calcara
Mr. John D. Phillippe

Mr. Stephen W. Chilton
Mr. and Mrs. John B. Henkle

Mr. Wallace Clark
Warren and Sandy Glickert

Mrs. James H. Coil Jr.
Mrs. Robert W. Kelley

Carolyn T. Costen
Dr. and Mrs. Robert Paine

Mrs. Margaret E. Crisler
Ms. Ruth E. Buerke

Mrs. Charles M. Day
Miss Phyllis McPheeters

Mrs. Betty Dean
Mr. and Mrs. Gary P. George
Mrs. Patricia A. Hayek

Mrs. Bess Dolores Devine
Ms. Joan Esposito

Mrs. Jiro Doi
Mr. and Mrs. James J. Brittain

Mrs. Jeanette S. Dorfman
Mr. and Mrs. Edward F. Ruprecht

Ernst and Valeria Driesen
Mrs. Lydia Sehnert

Mrs. Richard D. Dunlop
Dr. and Mrs. August H. Homeyer
Mr. and Mrs. Warren M. Shapleigh

Mother of Mr. Dye
Evergreen Garden Club
General Grant Garden Club
Moonlight Garden Club
Twilight Garden Club

Mr. Irving Edison
Mr. and Mrs. Henry W. Dubinsky
Mr. and Mrs. Karl Michner
Mr. and Mrs. William R. Orthwein Jr.

Esther Schneider Epp
Mrs. Geraldine Epp Smith

Mr. Lawrence S. Eresh
Angeline Baldwin
Kathryn Eresh
Mr. and Mrs. Russell G. Wiethop

Mrs. Mary Young Favor
Mr. Wylie R. Williams

Brother of William Ferzacca
Mr. and Mrs. Stephen C. Smith

Mrs. Carrie Finke
Mr. and Mrs. Walter G. Stern

Newborn Son Jack Fitzerald
Elizabeth Jewell Fitzgerald
Martin Fitzgerald

Mr. and Mrs. Robert E. Flynn Jr.
Mr. and Mrs. John G. Buettner
Mr. and Mrs. Robert E. Kresko
Mr. and Mrs. David J. Lehleitner
Mr. and Mrs. Daniel E. Richardson
Dr. and Mrs. Ernest T. Rouse III

Mildred Forsyth
Ruth Esko
Ellen Hoey

Mrs. Adlyne Freund
Mr. and Mrs. Frank Adam
Mr. and Mrs. Arthur E. Ansehl
Arthritis Foundation, Eastern Missouri Chapter
Arthur Andersen & Co.
Mr. and Mrs. Irven M. Barker
Eleanor and Joan Berkman
Mr. William S. Bolinger
Mr. and Mrs. Saul Brodsky
Mr. and Mrs. Arthur Bromberg
Mr. and Mrs. Eugene H. Buder
Mr. and Mrs. Lawrence R. Chapman
Mr. and Mrs. Henry W. Dubinsky
Mr. Jim Eftimoff
Mr. and Mrs. Vasil Eftimoff
Mr. and Mrs. Dennis R. Elliott
Dr. and Mrs. C. Wm. Emory
Mrs. Bobby Erlich
Dr. and Mrs. I. Jerome Flance
Mr. and Mrs. Newton Frankel
Mrs. Blanche J. Freed
Ruth S. Freedman
Mr. and Mrs. Frederick H. Freund
Mrs. Ina B. Freund
Mr. and Mrs. Michael H. Freund
Mr. and Mrs. Robert Freund
Mr. and Mrs. S. E. Freund
Phyllis Gallagher
Mr. and Mrs. Albert Gerber
Mr. and Mrs. Harry G. Giessow
Mr. and Mrs. Irwin Gittelman
Mr. and Mrs. Ben Glassman
Mr. and Mrs. Fred Goldberg
Dr. and Mrs. Melvin L. Goldman
Mrs. Mary Greensfelder
Mr. and Mrs. Edwin Grossman
Mr. and Mrs. Edwin F. Guth
Mrs. Jerome T. Holden
Joan G. Ingham
Mr. and Mrs. George P. Jacobson
Japan Air Lines
Japanese American Women's Organization
Mr. Guy Jester
Judevine Center—Staff and Children
Mr. and Mrs. Jerome Kalishman
Mr. and Mrs. Edgar B. Kleban
Mr. and Mrs. S. Lee Kling
Nancy and Ken Kranzberg
Mr. and Mrs. Harry L. Laba
Deryl Lane
Mr. and Mrs. Michael D. Latta
Mr. and Mrs. Alan L. Lieberman
Dr. and Mrs. Antonio I. Longrais
Mr. and Mrs. Stanley L. Lopata
Mrs. Ross B. Luitjens Jr.
Mr. and Mrs. Norman F. Mack
Ms. Margie Wolcott May
Mr. and Mrs. Edwin B. Meissner Jr.
Mercantile Bancorporation—Trust Department

continued on next page

Tributes

continued

Mr. and Mrs. I. E. Millstone
Mrs. Hubert C. Moog
Mr. and Mrs. Fred A. Oberheide
Mr. and Mrs. William R. Orthwein Jr.
Pavilion Marriott Hotel
Mr. and Mrs. Ervin Pfeiffer
Mr. and Mrs. Donald G. Quicksilver
Dr. and Mrs. Peter H. Raven
Mr. John T. Reed
Dr. Leslie Rich
Mrs. Patricia Rich
Mrs. Joseph A. Richardson
Mr. and Mrs. Jon A. Roos
Mr. and Mrs. Robert A. Rosenthal
Mr. and Mrs. Bernard A. Ross
Saks Fifth Avenue—
Frontenac, Missouri
Mr. Charles M. Schayer
Mr. and Mrs. F. Carl Schumacher
Mrs. William E. Shamski
Mr. and Mrs. Robert R. Sheahan
Mrs. Thomas W. Shields
Ms. Ruth Stampfer
Mrs. Florence G. Stern, Nora and Walter
Travellers Choice
Mrs. Nathan Tureen
Washington University—
Department of Ophthalmology
Mr. and Mrs. Robert S. Weinstock
Mrs. S. A. Weintraub
Mr. and Mrs. Vernon J. Wendt
WLL Foundation
Dr. and Mrs. Mitchell Yanow
Mr. and Mrs. Louis I. Zorensky
Mr. and Mrs. Sander B. Zwick

Miss Elsa Fuerst
Ms. Elvera Stuckenberg

Ms. Judy Geoghegan-Doi
Missouri Chapter of I.A.P.E.S.
Ms. Lois L. Woods

Mr. Peter Gilbert
Mr. and Mrs. Charles W. Freeman

Mr. Alan Godlewski
Mrs. Marylyn Baldwin

Mr. Seymour Goldstone
Mrs. Myrtle G. Weinrobe

Mr. Bill Goodman
Mrs. Ruth Schwartz

Mr. Donald G. Graham
Mrs. Florence J. Ritchie

Mrs. Nan Granneman
Mrs. James C. Anderson

Mr. Vernon A. Granneman
Mrs. James C. Anderson and Family
Broadmoor, Building No. 3 Residents

Mr. Samuel Greenland Jr.
Mr. and Mrs. John B. Henkle

Rev. Walter Grueninger
Miss Mary L. Sunderman

Mr. Alan P. W. Gullborg Sr.
Mrs. Thomas S. Duncan

Father of Marty Gummers
Rabbi and Mrs. Dov Bard

Mr. David Hanewinkel
Mr. and Mrs. Kenneth Stolle

Mrs. Jessamine Hardcastle
Mrs. Fritzi Tanzer

Mrs. Mildred Harris
Mr. and Mrs. D. L. Meek

Mr. Thomas K. Harris
Mr. and Mrs. Daniel Bouck
Mr. and Mrs. Lindell P. Chew
Mr. and Mrs. Bruce English
Mr. and Mrs. Donald M. Strathearn II
Barbara and David Weddell

Mr. William A. Haukap
Mr. and Mrs. Fred W. Fangmann
Mr. and Mrs. Walter O. Sauer
Mrs. Esther M. Steinberger

Mr. Thomas M. Hawken
Mr. and Mrs. Richard J. Kautzman

Mr. Dale E. Hedrick
Mr. and Mrs. Ronald G. Mueller

Mr. Arthur Brock Heman
Ms. Joan Esposito

Mrs. Althea M. Heuser
Gertrude and Paul Mueller
Richard Mueller

Helen P. Hnatko
Mrs. Lois Holt
Ida M. Petrunick
Mr. and Mrs. Roger Shaw

Mrs. Lucille Hoener
Mrs. G. P. Plaisance
Mrs. Florence J. Ritchie
Mrs. A. Forest Seay

Mrs. Esther Hohn
Mrs. Helen E. Fitzroy

Mr. Irv Holtzman
Mr. and Mrs. Seymour Feinstein

Mr. Charles D. Howell
Dr. and Mrs. John Payne Roberts

Mrs. James H. Howell
Dr. and Mrs. John Payne Roberts

Anne Lucas Hunt
Mrs. Roland O'Bryen

Mrs. Lester Hurd
Mrs. Harold W. Dubinsky

Sister of Trudy Hutchison
Mrs. Norma M. Silber

Jessie and Oma
XYZingers Club of Florissant

Belle Johnson
Margaret
Nancy
Peggy

Mr. Channing E. Jones Jr.
Mr. and Mrs. Richard Archer

Mrs. Evelyn Jones
Mr. and Mrs. Joel K. Bedol
Mr. and Mrs. Donald D. Comfort

Mr. and Mrs. Walter Jones
Mr. H. James Hoeferlin

John and Helen Joynt
Mr. and Mrs. Arthur F. Boettcher Jr.

Mr. Elmer T. Kaatmann
Mr. and Mrs. William H. Boemler Jr.

Mr. Michael Katricka
Mrs. Marilyn Edmiston

Mrs. Olga Kheim
Mrs. Don Adams
Mr. and Mrs. P. Terence Crebs
Ms. Carol Laciny
Mrs. Blanche Rieser

Dr. Teofil and Olga M. Kheim
Mrs. George P. Metcalf and Family
Webster Manor Association, No. 2

Mrs. R. M. King
Ms. Teresa A. Dresler
Dr. and Mrs. Peter H. Raven
Mrs. Norma M. Silber

Mr. Lester B. Knight
Mr. and Mrs. Walter G. Stern

Mr. Ely Kopman
Mr. and Mrs. Julian I. Edison
Dr. and Mrs. Sidney Jick

Mrs. Kathryn Krafft
Mrs. Elmer J. Kulla

Mrs. Irma Kumbera
Mrs. C. H. Bley

Mr. Forrest Comer Lattner
Mr. and Mrs. John G. Goessling
Karen G. Goessling

Mrs. Peggy McKee Lawshe
Ms. Beth Gribat
Judge and Mrs. Roy W. Harper

Mrs. Annette Le Pique
H. Le Pique

Mrs. Shirley Levin
Dr. and Mrs. Harry I. Berland
Mr. and Mrs. Milton J. Canis
Mr. and Mrs. Charles J. Cook
Dr. and Mrs. Marvin Cornblath
Dr. and Mrs. Harold M. Cutler
Mr. and Mrs. Julian I. Edison
Missouri Botanical Garden—Guides
Mrs. Samuel D. Soule

Aurelia Leyder
Ms. Agnes Koenig

Mr. Theodore H. Liebig
Mr. and Mrs. Clarence T. Wilson

Rosalind Maas
Dr. and Mrs. Charles Silverberg

Dr. Sherwin Malt
Mrs. Ruth Schwartz
Ms. Lynn K. Silence
Mr. and Mrs. Ben Wakasa

Mr. Virgil Mandrel
Mrs. Virginia M. Epstein

Mrs. Mildred McCarthy
Beta Theta Chapter—
Delta Kappa Gamma

Dr. Paul S. McElroy
Marjorie Ivey
Frances Slusher

Mr. James McMillan
George and Weens Bishop

Mr. Robert McRoberts Sr.
Mr. and Mrs. S. E. Freund
Mr. and Mrs. Tom P. Kletzker
Mr. and Mrs. John J. Reed

Duane Meadows Jr.
Mr. and Mrs. Daniel Bellows
Ms. Kristine Brill
Fleishman-Hillard, Inc.—Atlanta
Fleishman-Hillard, Inc.—Kansas City
Dave Garino
Mr. and Mrs. John D. Graham
Ms. Paula J. Murray
Novachrome Inc.
Mary Phelan
Ms. Susan Schepman
Ms. Elizabeth T. Solberg
Mr. and Mrs. C. Gene Walburn

Grandfather of Patti Metz
Ms. Lynn K. Silence

Mrs. Marie Micksa
Mrs. Robert H. Kittner

Mrs. Ruth Mitchell
Mr. and Mrs. D. Bruce Vittert

Mrs. Katsume Mitori
Mr. and Mrs. Ted Doi
Toshi and Sue Doi
Mrs. Kimi Durham
Mr. and Mrs. Stanley B. Feldman
Mr. George K. Hasegawa
Mr. and Mrs. Ted Hattori
Mr. and Mrs. Richard T. Henmi
Jewish Hospital—Department of Psychiatry
Dr. and Mrs. Peter K. Matsuoka
McDonnell-Douglas Corporation—
B66 Program
Mrs. Asako Morioka
Mr. Sam M. Nakano
Anita Powitzky
Larry Powitzky
Mr. and Mrs. George T. Sakaguchi
Mr. and Mrs. Masaharu Takano
Mrs. Kimiko Taketa
Dr. and Mrs. George M. Tanaka
Mr. and Mrs. Ben Wakasa

Mrs. Lorraine Moore
Ms. Linda M. Kohne

Mr. Richard I. Moore
Helen Brown
Corrinne Hallquist

Helen Morefield
Mr. and Mrs. Charles W. Freeman

Mrs. John C. Morfit
Mr. and Mrs. William R. Orthwein Jr.

Ms. Helen Munster
Mr. and Mrs. Robert E. Koehr

Mr. Paul Mutrux
Mr. and Mrs. Richard B. Rosenthal

Rosemary Nall
Mr. and Mrs. Charles W. Freeman

Mr. Harry Niederbremer
Mr. Don J. Riehn

Mrs. Helen Oates
Mrs. A. F. Seay Jr.

Mr. Arthur Ocker
Ms. Louise C. Ittner

Mr. Charles W. Orner
Boatmen's Trust Company
Mrs. Dwight W. Coultas
Dr. Marshall R. Crosby
Ms. Teresa A. Dresler
Mr. and Mrs. Richard Halpern
Mr. and Mrs. Landon Y. Jones
Ms. Barbara Mack
Dr. Nancy Morin
Mr. and Mrs. Charles W. Oertli
Mr. and Mrs. William R. Orthwein Jr.
Dr. and Mrs. Peter H. Raven
Dr. Leslie Rich
Mrs. Patricia Rich
Mr. Joseph F. Ruwitch
Mr. and Mrs. Warren M. Shapleigh
Mrs. Norma M. Silber
Mr. L. C. Trovillion
Vince, Jessica and Mike Ventimiglia

Mrs. Marguerite J. Paul
Mrs. Richard B. Graves

Brother of Bertie Mae Perkins
Dr. and Mrs. Graydon L. Ballard Jr.

Mrs. Lilly Peschke
Mr. and Mrs. Harvey Hieken

Mr. E. W. Phillips
Mr. and Mrs. Nelson Doi
Mr. and Mrs. Jack C. McKelvey
Ms. Andrea Phillips Tayabji

Dr. Lawrence J. Pirio
Mr. Mark Aneskievich

Mrs. Marie P. Cook
Dr. and Mrs. William G. D'Arcy
Mrs. Frank G. Kirtz
Dorothy M. Lambert
Dr. and Mrs. George A. Mahe
Mercy Ambulance Service, Inc.
Missouri Botanical Garden—Guides
Missouri Botanical Garden—
  Volunteer/Instructors
Lynn Morrissey
Ms. Rose Dryer Pluempe
Mrs. Yolanda Taylor

Mr. Thomas G. Rankin
Mrs. Leonard R. Duerbeck

Mrs. Gladys Remme
Mr. and Mrs. D. Goodrich Gamble

Mr. William Remmert
Mr. and Mrs. Stanley C. Pace

Mr. Bill Robertson
Mr. and Mrs. Richard Hepper

Blanche Robinson
Mr. and Mrs. Albert J. Hitt
Missouri Botanical Gardens—
  Volunteer/Instructors
Dr. and Mrs. Philip Needleman

Mr. Orville Roesch
Mr. and Mrs. Robert H. Harper

Mrs. Lawrence K. Roos
Mrs. William H. Epstein

Mr. Otto Roth
Mr. and Mrs. Jack Delling

Mrs. Stella A. Ruzicka
Mr. and Mrs. Joseph D. Boing

Mrs. Nellie Sachs
Dr. and Mrs. Stephen F. Bowen Jr.
Mr. and Mrs. Charles J. Cook
Mrs. Harold W. Dubinsky
Mr. and Mrs. Robert P. Elsperman
Mr. and Mrs. Burton Follman
Mr. and Mrs. Alan P. Goldberg
Mrs. Harry W. Loeb
Dr. and Mrs. Antonio I. Longrais
Mr. and Mrs. Charles W. Oertli
Mr. and Mrs. Richard T. Price
Mr. and Mrs. Rudyard K. Rapp
Dr. and Mrs. Peter H. Raven
Mr. and Mrs. Daniel E. Richardson
Mr. and Mrs. A. Charles Roland III
Mr. and Mrs. Robert N. Schulte
Mr. Hugh Scott III
Mr. and Mrs. Walter G. Stern
Mr. and Mrs. Robert P. Tschudy
Mr. and Mrs. Frank P. Wolff Jr.
Mr. and Mrs. Louis I. Zorensky

Mr. Dan Sakahara
Mrs. William H. Epstein

Mr. Bob Schaeffer
Mr. and Mrs. Robert H. Harper

Col. A. E. Schanze
Dr. and Mrs. Paul C. Vose

Miss Elsa A. Schaperkotter
Miss Alma D. Simms
Miss Myra Simms

Mrs. Hilda Schiffer
Mrs. Margaret McCormick

Mr. Earl Schillinger
George E. Giudici Family
Rose Society of Greater St. Louis

Mr. Bill Schoenfeld
Mrs. Ruth Schwartz

Eugenia Lansburgh Schwartz
Mr. and Mrs. Henry C. Lowenhaupt

Jule Seibel
Mr. and Mrs. M. K. Harrington

Mrs. Virginia Seibert
George and Weens Bishop

Mr. William Serbi
Mr. and Mrs. William Abram
Mrs. Vicki Erb
Mr. and Mrs. Vernon R. Hoffman
University City Monitor Club

Mr. Herman Shankman
Mrs. Blanche J. Freed

Mrs. Alma A. Shoenberg
Mr. Sydney M. Shoenberg Jr.

Mr. George Shoji
Kats and George Abe
Mitzi and Glenn Campbell
Mr. and Mrs. Teruo Doi
Toshi and Sue Doi
Mr. and Mrs. Gary A. Mitchiner
Lily and Harry Nabeshima
Mr. and Mrs. Ben Wakasa

Mr. Jack Allin Sills
Mr. and Mrs. Wilbert Obermoeller

Mr. Eugene T. Simonds
Mr. and Mrs. Keith D. Shaw

Mrs. Margaret Frick Smith
Mr. and Mrs. William C. Kerwin

Mr. Edwin John Snider
Mr. and Mrs. Donald M. Strathearn II

Mrs. Evelyn Soden
Mr. and Mrs. Robert C. Ely
Dr. and Mrs. William F. Kiefer
Mr. and Mrs. Charles H. Schwarting

Mr. Barry Sokolik
Ms. Marilyn Werner

Dr. Paul Squiteria
Ms. Janelle Evans

Mr. Larry Stanton
Mr. and Mrs. Philip Hall
Mr. and Mrs. George F. Hellmuth

Mr. and Mrs. Robert Stein
Brown Shoe Company—
  Cost Control Department

Mrs. Mary Lucille Steinmann
Mr. Dale L. Boring
Dr. and Mrs. David H. Brown
Orchid Society of Greater St. Louis
Mr. and Mrs. Walter C. Stern
Mr. and Mrs. Doyle Wilhelm

Arnold G. and Mildred E. Stifel
Mr. G. David Stifel

Mr. Stephen Stross
Mr. and Mrs. Stuart A. Bartfeld
Dr. and Mrs. Manfred Thurmann

Mrs. Florence Strothkamp
Mr. and Mrs. James Whaley

Dr. and Mrs. Raymond C. Sunderman
Miss Mary L. Sunderman

Mr. Philip Theopold
Mr. and Mrs. George F. Hellmuth

Barbara Mundt Ulrich
Mr. and Mrs. Clarence W. Klasing
Mr. and Mrs. Robert Maschmeier
Republican State Committee

Mrs. Eva Urmar
Mildred Bearden
Margery Brooks
Cathy Burt
Janine Cotohlis
Jo DiCampo
Karen Doll
Alayna Duncan
Joyce Ferrell
Ellen Galt
Mrs. Rosalie V. Goldsberry
June Grieg
Joe Guasto
Lydia Hagedorn
Jan
Rosalie Kesselring
Hilda Klearman
Larry Ladd
Margo Luntz
Judy Maune
Shirlee Meeker
Mitzi
Otis
Gerre Prush
Juanda Rice
Sherry Singer
Liz and Valerie Swayzee
Beverly Vogt
Dorothy Vors
Theresa Wachowe
Jean Walker
Marcia Wiesman

Mrs. Elizabeth Vianden
Mr. and Mrs. Randall Mennett

Mr. Charles Vincel
Mr. and Mrs. Peter H. Husch
Mr. and Mrs. Robert N. Schulte
Mr. and Mrs. Clarence T. Wilson

Mrs. Emma Viso
Ms. Agnes Koenig

Stepfather of Pattie Waelther
Mrs. Mary Greensfelder

Mr. Oliver Wagner
Mrs. Marie Carbone

Mr. Robert M. Waites
Dr. and Mrs. Vanderpearl

Mr. Raymond Weiland
Mr. and Mrs. D. Goodrich Gamble

Veronica and John Wenzel
Mr. and Mrs. Louis W. Clark III

Mrs. Gloria Wheeler
Beta Theta Chapter—
  Delta Kappa Gamma

Mrs. Laura Wilhelm
Mr. and Mrs. Louis W. Lehman

Mother of Tommie Wilson
Mr. and Mrs. Al S. Loeb
Mr. and Mrs. Stephen H. Loeb
Mrs. Ben H. Senturia

Mrs. Anne Wisneskey
Mr. Paul Schreiber

Mrs. Elsa M. Wolfe
Mr. and Mrs. M. J. Grzesiowski

Mr. Frank Wolff
Mr. and Mrs. Howard F. Baer
Dr. and Mrs. Harold M. Cutler
Ms. Teresa A. Dresler
Mr. and Mrs. Henry W. Dubinsky
Mr. and Mrs. David C. Farrell
Mrs. Rose Floret
Mr. and Mrs. Richard Halpern
Mr. and Mrs. Henry C. Lowenhaupt
Mr. and Mrs. Richard T. Price
Mr. and Mrs. S. I. Rothschild Jr.
Mr. and Mrs. Walter G. Stern
Mrs. Milton H. Tucker
Mr. Richard E. Turner

Mother of Judy Wunderlich
Mr. and Mrs. Steven J. Nissenbaum

Mrs. Deane A. Young
Mrs. Cora Wise Peters

Mr. John Zenger
Mr. S. E. Freund

Board of Trustees

Mr. Robert E. Kresko
President

Dr. Marguerite Ross Barnett
Rev. Lawrence Biondi, S.J.
Mr. Gerald D. Blatherwick
Mr. Stephen F. Brauer
Mr. William H. T. Bush
Mr. Jules D. Campbell
Dr. William H. Danforth
Mr. Samuel B. Hayes
Mr. Robert R. Hermann
Rt. Rev. William A. Jones, Jr.
Mr. David W. Kemper
Mr. Charles F. Knight
Mr. William E. Maritz
Mr. James S. McDonnell III
The Hon. Gene McNary
Mr. Lucius B. Morse III
Mrs. Fred A. Oberheide
Mr. William R. Orthwein, Jr.
Mrs. Vernon W. Piper
Mrs. Lucianna Gladney Ross
Dr. Howard A. Schneiderman
The Hon. Vincent C. Schoemehl, Jr.
Mr. Sydney M. Shoenberg, Jr.
Mr. C. C. Johnson Spink
Mrs. Walter G. Stern
Mr. Andrew C. Taylor
Dr. Joyce M. Thomas
Mr. John K. Wallace, Jr.
Mr. O. Sage Wightman III

EMERITUS TRUSTEES
Mr. Howard F. Baer
Mr. Clarence C. Barksdale
Mr. Joseph H. Bascom
Mr. John H. Biggs
Mr. Sam'l C. Davis
Dr. Thomas S. Hall
Mr. Henry Hitchcock
Mrs. Anne L. Lehmann
Mr. Joseph F. Ruwitch
Mr. Louis S. Sachs
Mr. Daniel L. Schlafly
Mr. Warren M. Shapleigh
Mr. Robert Brookings Smith
Mr. Tom K. Smith, Jr.
Mrs. Harriet Spoehrer
Mr. Harry E. Wuertenbaecher, Jr.

HONORARY TRUSTEES
Dr. Mildred Mathias
Prof. Phillippe Morat

DIRECTOR
Dr. Peter H. Raven

MEMBERS' BOARD
Mrs. Henry W. Dubinsky
President

Mrs. Rudyard K. Rapp
Mrs. Antonio I. Longrais
Mrs. Robert J. Senkosky
Mr. Frederick H. Atwood III

A New Book on the Garden

A World of Plants
THE MISSOURI BOTANICAL GARDEN

A WORLD OF PLANTS: THE MISSOURI BOTANICAL GARDEN

A splendid new hardbound volume, lavishly illustrated in full color, will be available exclusively through the Garden for six months, beginning in November. Published by Harry N. Abrams, Inc., the book features magnificent photographs by Kiku Obata and Jack Jennings. The text includes a foreword by Peter H. Raven, and essays on "The Botanical World," by Marshall R. Crosby; "Henry Shaw and the Early Foundation of the Missouri Botanical Garden," by Charlene Bry; "A Tour through the Garden Today" and "Research: At Home and in the Field," by Peter Loewer. The book emphasizes the beauty and richness of the Garden's horticultural displays.

Available in the Garden Gate Shop in November, 1989 *$45.00*

MISSOURI BOTANICAL GARDEN BULLETIN (ISSN-0026-6507)
P.O. Box 299
Saint Louis, Missouri 63166

SECOND CLASS
POSTAGE
PAID
AT ST. LOUIS, MO

CENTENNIAL
Board of Trustees
1889 1989
Missouri Botanical Garden

QK
M591
C.2

Missouri Botanical Garden Bulletin

NOVEMBER / DECEMBER 1989

VOLUME LXXVII
NUMBER SIX

Inside This Issue

4 **Volunteer Profile**
Kitty Hoblitzelle is honored for her work with Gateway to Gardening.

5 **A World of Plants**
A sumptuous new volume brings the Garden home for the holidays.

6 **Plants at the Garden**
Genus *ficus* includes figs, rubbertrees, mulberries, and osage-oranges.

7 **Home Gardening**
Compost piles offer a solution to those abundant autumn leaves.

8 **Centennial of the Board of Trustees**
The Board holds its Centennial meeting.

10 **Calendar of Events**
The holidays bring a glittering array of special events.

12 **Ask the Answer Service**
Plants move indoors for the winter.

13 **From the Membership Office**
A trip to Ireland is the highlight of the spring travel program.

16 **''Hidden Wealth'' of Rain Forests**
Garden curator Alwyn Gentry participates in a significant new study.

17 **Tributes**

On the cover: Three *Angel Musicians*, by Carl Milles, strike a holiday note.
—Photo by King Schoenfeld

© 1989 Missouri Botanical Garden.

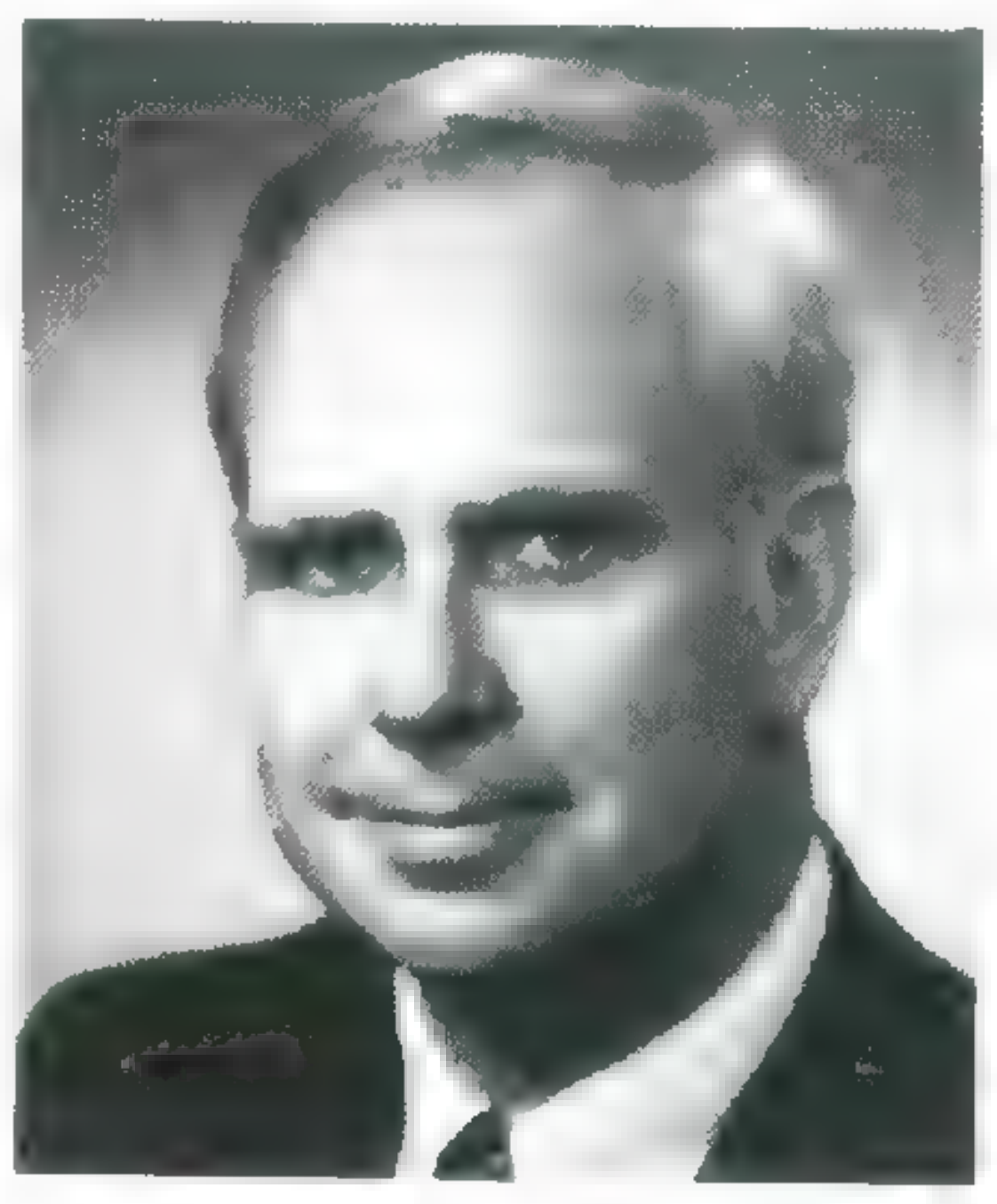
The BULLETIN (ISSN 0026-6507) is published bi-monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, MO 63110. Second class postage paid at St. Louis, MO. Subscription price $12.00 per year. $15.00 foreign.

The BULLETIN is sent to every Member of the Garden as one of the benefits of membership. For a contribution of as little as $40 per year, Members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and for course fees; and the opportunity to travel, domestic and abroad, with other Members. For information, please call (314) 577-5100.

Postmaster: send address changes to Susan Wooleyhan, editor, BULLETIN, P.O. Box 299, St. Louis, MO 63166.

Comment

Planning for the Future



On November 7, you are being asked to cast votes in favor of Propositions A, B and C. These three proposals are requested by (A) the Missouri Botanical Garden, (B) the St. Louis Science Center, and (C) the Saint Louis Symphony Orchestra for increased property tax support. The Garden is asking voters to approve a 3.3-cent increase in the property tax rate, bringing its levy to 6-cents per $100 of assessed valuation. A homeowner with an $80,000 home will pay about $5.00 a year more if Proposition A passes.

As a Garden member, you have witnessed the tremendous growth during the last decade in our programs, services, and number of visitors. In addition, the Garden is committed to meeting the needs of the increasing number of children and adults who want to learn about the challenges facing our environment and what they can do to make a difference.

There is also a pressing need to embark in an ongoing program to preserve and maintain our historic buildings, which were willed to the people of St. Louis by Henry Shaw. Approximately $33 million will be needed through the 1990s for ongoing repair, maintenance, and reconstruction of Garden structures including the historic buildings.

Finally, the Garden is committed to low admission prices and free mornings. With added tax revenue, we will be able to insure the open and public philosophy upon which Henry Shaw founded the Garden.

Looking toward the year 2000, we recognize the vital nature of our mission—to increase and disseminate knowledge about plants and to increase awareness of their aesthetic and environmental importance. Now more than ever the Garden must use its education and research programs to speak out on critical environmental problems confronting us all.

The involvement and support of Garden members has had a significant and positive impact on the Garden's programs and services during the 1980s. Now we must plan for the next decade and beyond.

Your support of Propositions A, B and C is needed on November 7. As a Garden member, you can help guarantee that the Garden remains one of the community's and, indeed, the world's top environmental education resources, and a place that enriches the lives of generations of St. Louisans.

I am hopeful of your support.

Peter H. Raven

NOVEMBER 7, 1989

PROPOSITIONS

A, B, & C

Missouri Botanical Garden

St. Louis Science Center

Saint Louis Symphony Orchestra

Vote Yes.

Below: High school students work with elementary classes throughout the school year.

DEBBIE FRANKE

Top left, and above: ECO-ACT brings together students of diverse backgrounds, stressing cooperation, responsibility, and teamwork. Participants are encouraged to grow from experiences that take them beyond the usual boundaries of the classroom.

ECO-ACT: Leadership and Learning

ECO-ACT stands for Ecology in Action. It is an environmental leadership program that brings together high school students of diverse backgrounds from both St. Louis city and county. An innovative program developed at the Garden, ECO-ACT teaches environmental issues and leadership skills to sophomores, juniors and seniors, who enroll for a full year and receive course credit from their schools. Participants are recruited from both public and private high schools and are trained to teach elementary school children about environmental issues, an exciting interaction that benefits both age groups.

Begun in 1981, the ECO-ACT program has been selected by the National Science Teachers Association as a national model program in its Search for Excellence in Science Education. ECO-ACT is just one of several ways the Garden implements its commitment to environmental education and community involvement. By training high school students to teach, the Garden's education staff multiplies its efforts; the 70 high school students in ECO-ACT can reach 900 elementary students during the school year, throughout the community.

Summer Session

The program starts with a three-week summer session. The ECO-ACT students investigate urban environmental issues, take a four-day canoe trip on the upper Meramec River to study the natural environment, and learn to work as a group. Activities emphasize discussion, teamwork, and accepting responsibility.

The School Year

Once the school year starts, the high school students are trained during monthly workshops at the Garden to develop teaching skills, emphasizing hands-on activities that children will enjoy. The student teachers develop programs on topics such as food chains, habitats, biological communities, the water cycle, natural resources, pollution, waste, and conservation.

Divided into teams of two to four, the high school students are assigned to elementary classrooms throughout the community. They visit the classes for an hour each week, working with the children on the topics they have studied.

Environmental Action Projects

At the end of the year the ECO-ACT students design a four-week activity that involves their elementary classes in an environmental action project. With their students' suggestions, they select an environmental issue of interest to everyone. A number of classes have chosen recycling projects in the past, collecting aluminum cans, or even making recycled paper from scraps. The class may use the paper they have made, writing a letter to a government agency about a specific environmental issue of concern to them. Other classes have initiated school beautification projects or class gardens. These action projects are the culmination of a year's education on environmental concepts and issues and have an impact, not only in the schools, but often on the community as a whole.

The Students Say:

Reflecting on their experiences in the program, students have said:

> *"ECO-ACT helped me to develop leadership skills, boost my self-confidence, and realize my love for working with people of all different ages and backgrounds."*
>
> *"I met people I never would have met otherwise, and I realized that we are all very much alike."*
>
> *"ECO-ACT made me aware of what we are doing to our planet and how we can improve our world."*

—*Barbara Addelson,*
ECO-ACT Instructor

VOLUNTEER PROFILE

Kitty Hoblitzelle Is Honored for Work with Gateway to Gardening

KING SCHOENFELD

Kitty Hoblitzelle

On September 13, 1989, the Garden Club of America presented its annual Zone XI Conservation Committee Award for Civic Improvement to Katharine (Kitty) Hoblitzelle. Kitty, a member of the Garden Club of St. Louis, was recognized for her leadership in the Gateway to Gardening Association. The Garden Club of America seeks to restore, improve and protect the quality of the environment through programs and action in the field of conservation, civic improvement and education.

Gateway to Gardening Association (GTGA) is a not-for-profit network of agencies, organizations and volunteers that assists city residents in starting and maintaining community vegetable gardens. GTGA grew out of the Urban Gardening Program, which was begun in 1978 by the federal government to improve the nutrition of low income families. Kitty Hoblitzelle became involved in 1982, and in the past six years GTGA has greatly expanded its programs.

"Our purpose is simple," Kitty explains. "We bring people and resources together." By converting vacant, trash-filled lots to productive use, city residents not only share pride in each garden's effect on their neighborhood, they improve the quality and quantity of food on their tables.

GTGA works with an average of 30 community gardens each year in north and south side neighborhoods, at homes for abused or abandoned children, for residents of senior and public housing, and other social welfare groups. Under Kitty's dynamic leadership, the association raises money for tools, tilling, seeds, topsoil, and lumber for raised beds, which are essential for productive gardens on bulldozed, compacted clay lots. Just as important, GTGA volunteers help the residents build the gardens, advise them about techniques, and act as liaisons with various civic agencies that provide assistance. These include the Economic Development Corporation; Operation Brightside; the Urban League of St. Louis; Missouri Cooperative Extension Service; St. Louis Parks and Forestry Department; Human Development Corporation; Campus Y's and Hunger groups; Interfaith Partnership; and the Missouri Botanical Garden.

A native of Philadelphia, Kitty came to St. Louis in 1953. As a full-time volunteer of extraordinary accomplishment, she has dedicated herself to improving the quality of life in the St. Louis community. In her work with GTGA, which she served as Board President from 1985 through 1987, Kitty is not only a talented administrator and effective fundraiser; she spends many of her weekends building raised beds, shoveling mulch, and offering friendship and encouragement to the neighborhood gardeners.

Kitty has been instrumental in establishing the strong ties between GTGA and the Garden. Education—teaching people how to garden—is a primary goal of GTGA, and the association works with the Garden and the St. Louis Public Schools on the School Partnership Program (see the *Bulletin*, July-August 1989). GTGA has developed and supplied 13 "outdoor classrooms", providing opportunities for children to plant and maintain outdoor gardens at their schools. GTGA also provides scholarships to the Henry Shaw Academy and for adult classes at the Garden.

Members of the Garden's education staff serve as consultants to GTGA, and help to produce its newsletter. Master Gardeners work with the School Partnership Program. And each year the GTGA holds its Urban Gardening Fair at the Garden.

"Because we are able to network efficiently and rely on extraordinary volunteers, GTGA has been able to operate without staff," Kitty explains. "Almost every dollar donated goes directly into the service. In this instance, a little money can go a long way."

Dr. Peter Raven says, "We at the Missouri Botanical Garden do all that we can to support the GTGA program, because we know what an important asset it is for the community. I don't know of any individuals locally or regionally who have given as much to the cause of gardening or to civic improvement as Kitty Hoblitzelle."

Robert LaRouche / *St. Louis Post-Dispatch*

Elisabeth Cornelison of the Garden's education division helps neighborhood children at the Cornerstone Community Gardening Association plot in the city's West End.

A WORLD OF PLANTS

This magnificent new book from Harry N. Abrams, Inc., celebrates the beauty, diversity, and importance of plants at the Missouri Botanical Garden. Sumptuously illustrated with 158 plates, 125 in full color, the book treats readers to a grand tour of the Garden. Along the way information is given on garden design, plant care, botany, research, and the Garden's history. This lavishly designed book will be a delight to horticulturalists, botanists, and all those who love gardens. Harry N. Abrams, Inc., is the preeminent American publisher of high quality art and illustrated books. *A World of Plants* is available exclusively in the Garden Gate Shop through the spring of 1990, or you may use the order form below.

Please mail me__________copies of A WORLD OF PLANTS at $45 each. (Please add $5 per book for postage and handling.)

☐ Enclosed is my check for $____________________. ☐ Please charge my:

MasterCard No.______________________________Visa No.______________________________

Name as it appears on card____Exp. Date ______

NAME______________________________________PHONE (   )____________________

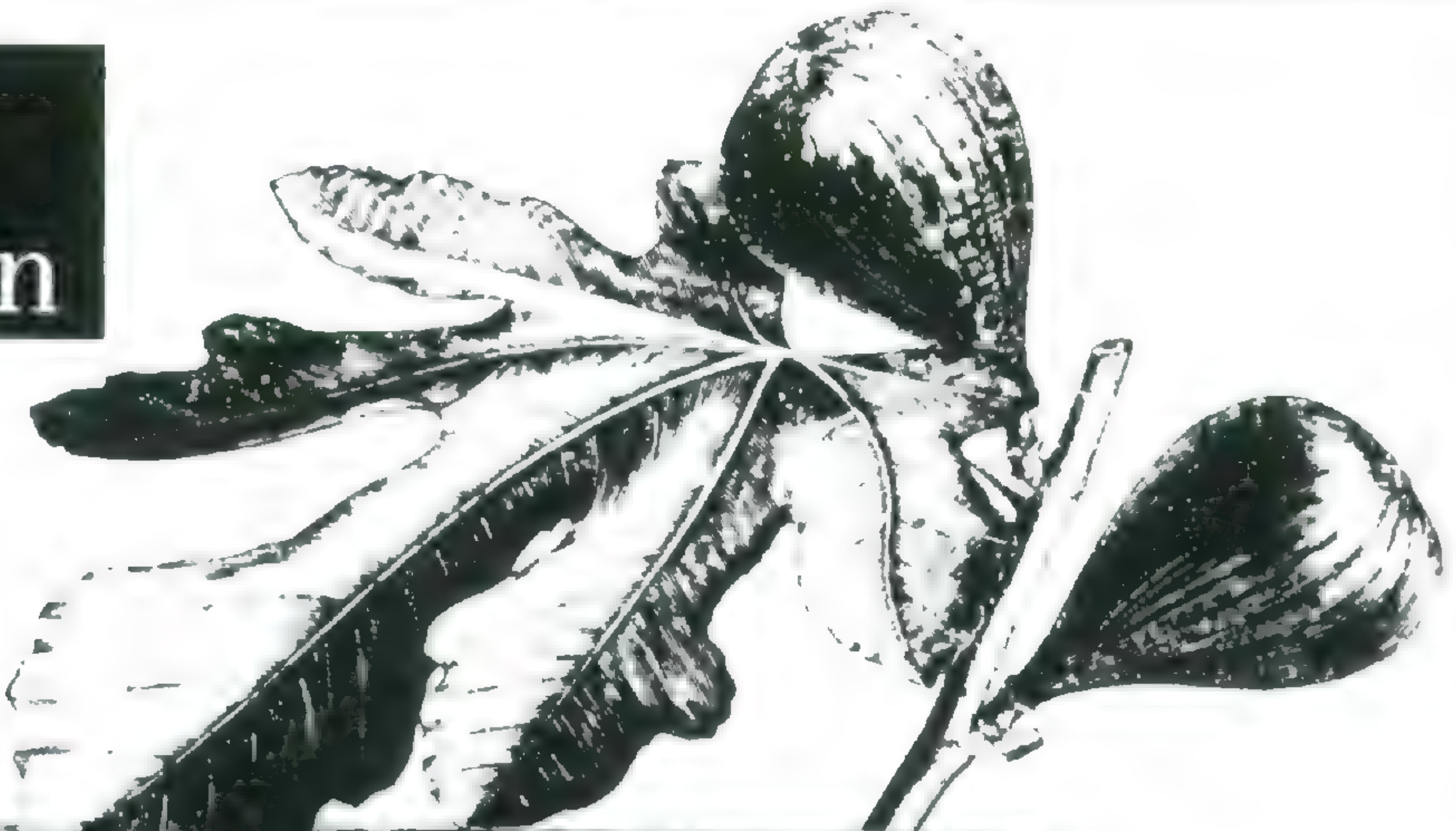
ADDRESS____

CITY______________________________STATE________________ZIP________________

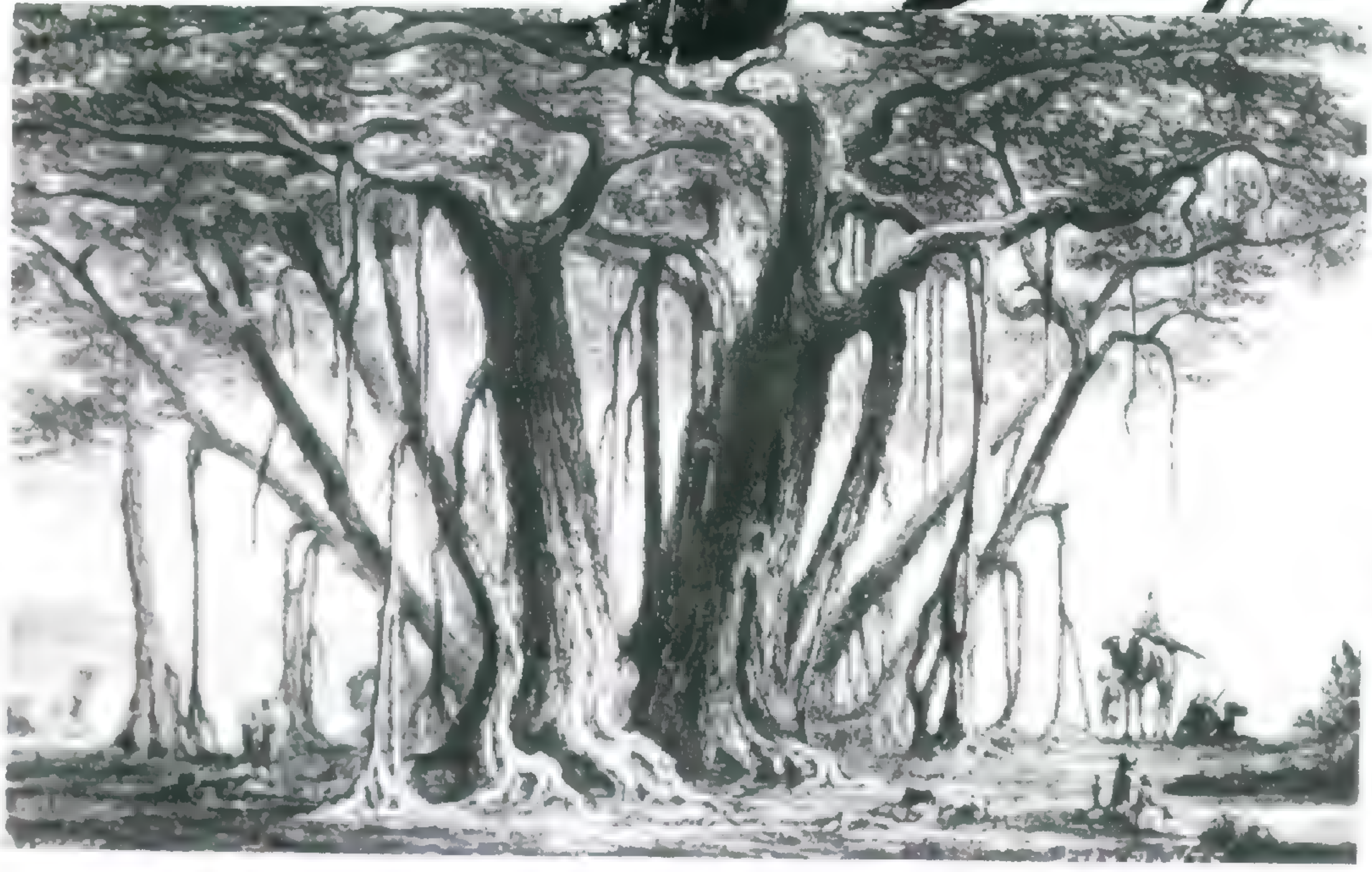
Please make checks payable to: Missouri Botanical Garden.
Mail to: Garden Gate Shop, Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-9910.

Plants at the Garden

Ficus



Top: Edible figs, *Ficus carica*.



Left: *Ficus sycomorus*.

FLANKING the doors just inside the Ridgway Center, lush, potted weeping fig trees *(Ficus benjamina)* greet Garden visitors. This species is likely to show up anywhere you find indoor potted trees. It is abundant in shopping malls, lobbies, and living rooms, including mine.

You might just as easily come upon another arborescent fig, the India rubbertree *(Ficus elastica)*, with large, thick, glossy green leaves. Looking at the India rubbertrees as encountered indoors, it may come as a surprise to learn that in the wild this species can become an enormous forest tree. (Despite its name, the India rubbertree is only a minor source of rubber and is not related to the true "Pará" rubbertree, *Hevea brasiliensis*.)

The weeping fig and India rubbertree are merely the tip of the iceberg of the fig genus *Ficus*, whose membership amounts to some 800 species indigenous around the tropics. And to broaden the perspective, *Ficus* accounts for about half of the species in the Mulberry Family (Moraceae), which includes such familiar representatives as mulberries (*Morus* species) and osage-oranges *(Maclura pomifera)*. Among the most conspicuous defining characteristics of the Mulberry Family are milky white sap and tiny unisexual flowers in tight clusters.

The fig "fruit" is such a flower cluster, although its exact nature is tricky to discern. The hollow fleshy "fruit" is really a swollen extension of the stem, and the flowers line its inner surface. Fig pollination is an odd story indeed (and may lead some squeamish readers to stop eating fig cookies).

The account here is that of the edible sycomore fig *(Ficus sycomorus)*. It is pollinated by a small wasp. The process begins when female wasps push their way into the fig through the hole at its tip (when you next eat a fig, spot this hole before chomping). Inside, the wasp lays her eggs in female flowers specialized as wasp nurseries. Other female flowers are adapted to form seeds, which requires deposition of pollen carried into the fig by the wasp.

About three weeks after the mother wasp lays her eggs, male wasps hatch and escape from their flowers. Wingless and almost blind, their roles in life are to fertilize the female wasp larvae while the latter remain trapped in their flowers, and then to chew an escape tunnel to the outside of the fig for the females. This accomplished, the male wasps die inside the fig.

At about this time the male flowers release pollen and the fertilized female wasps emerge from their flowers. They pack pollen into sacks on their bodies, exit through the aforementioned tunnel, enter a new fig to lay their eggs, and while in there pollinate the seed-producing flowers by removing pollen from the sacs with their legs and placing it directly onto the pollen-receptive portions of the flowers.

The species just described is the "sycomore" of the Bible, which has nothing to do with the American "sycamore" (genus *Platanus*). Sycomore figs are valued particularly in Egypt for shade (they can be 40 feet tall with trunks 20 feet around), tasty figs, and wood. The durability of the wood is demonstrated by sycomore wood carvings and mummy cases thousands of years old, and still in good condition.

Likewise mentioned throughout the Bible, and more important as a food, is the common fig *(Ficus carica)*. This is the fig leaf worn by Adam, Eve, and marble statues, and fig leaves are sewn together to make baskets and umbrellas. Figs from this species have traditional uses in treating skin disorders, and in facilitating recovery from long illness. Oddly, the individuals of *Ficus carica* that produce edible fruits are separate trees from those needed by the wasps for egg deposition. The latter are known as caprifigs (or goat figs). Long before botanists understood pollination, ancient fig growers understood that caprifigs hung among edible figs improved the crop. (Some modern cultivated selections do not require pollination.)

The odd aspects of figs extend beyond their pollination. The banyantree *(Ficus benghalensis)* spreads by forming multiple trunks under one enormous crown in such a way that a single individual can look like a whole forest. Even our garden variety weeping figs have a little of this tendency. The strangler fig *(Ficus aurea)* usually begins life as an epiphyte (a plant that grows perched up on another "host" plant) and then extends to the ground; it keeps on growing up, down, and around until the host is choked out and the former epiphyte is a free-standing tree.

As hinted by its Latin name, the Bo tree *(Ficus religiosa)* is sacred to Buddhists and Hindus. Shrines are often built around its enormous base in Buddhist countries. These shrines are sometimes exquisitely illuminated.

Not all figs form large shade trees, expand into one-tree forests, or overpower their former hosts. Carpeting the wall in the Linnean House is the creeping fig *(Ficus pumila)*, which looks more like a modest ivy than a relative of a mighty banyan. *—George Rogers, Ph.D.*

COMPOSTING:
A Case for Soil Improvement

I come from a long line of fishermen (since retired). One of our most intriguing family rituals was to plant fish leftovers at the base of promising new trees in our yard. This faithful practice was of unparalleled importance in ensuring a proper nutrient supply and growing sturdy specimens. While this ordeal seemed to be quite adequate for a climate of low rainfall and good organic soils, we are not so fortunate in the clay soils of the midwest. The only answer to the midwest dilemma is soil improvement, which I consider synonomous with composting.

At this time of year many homeowners are afflicted with an excessive quantity of leaves from trees. While most suffer through the process of bagging for the landfill, dedicated gardeners seize the opportunity to start another compost pile for the next growing season. Leaf composting is one of the best ways to recycle organic material. It saves landfill space, doesn't require bagging, and best of all can be used for improving clay soils.

WHY AND HOW

The science of composting involves the microbial decomposition of organic matter. The end product after several months is a dark, friable, partially decomposed material. When incorporated into the soil, it improves water holding capacity, buffers temperature extremes, speeds microbial cycling, and increases the storage capacity of mineral nutrients for the plants, sometimes referred to as Cation Exchange Capacity (CEC). Compost also can be applied as a mulch to retard moisture loss and soil erosion, control weed seed germination, and reduce disease spread. It also looks nice.

BUILDING A COMPOST PILE

Building a compost pile is pretty easy. Keep in mind that the whole process is a function of a multitude of microorganisms: bacteria, fungi and some insect consumers of organic matter. You are the farmer of this microcosm and you need to create a climate where these organisms can flourish. The pile needs moisture, air, supplemental nutrients and time.

The simplest method is just to make a heap of leaves on top of the ground in a mound about four feet in diameter and three feet high. Good compost piles are large enough to develop elevated temperatures (100-150°F), reflecting and promoting microbial growth. Small piles are not well insulated. Piles over five cubic feet become difficult to aerate, which slows decomposition. If you have the space, two or three piles formed at different times over a year will provide finished as well as developing compost.

More elaborate constructions are possible to conserve space. A snow fence or wire cage bin makes a nice pile and provides good air movement. Other more solid constructions of railroad ties or concrete blocks will work. One side should be open, for turning and aerating the pile.

Composting in a pit dug into the ground will also work. Because decomposion activity is directly related to pile temperature, winter composting above ground is slow. Below ground pits remain warm longer. However, poor air circulation and excessive moisture may slow the process.

COMPOSITION

During the growing season, materials for the compost pile can include almost any raw material from the garden. Avoid adding grease, fat, bones and meat, as these will attract animals. Also exclude weeds with seedheads and coarse plant material like sticks and lumber, which decompose too slowly. While most gardeners avoid composting diseased plant materials; these plant pathogens generally are not good survivors in wet compost heaps, due to the heat generated by decaying material and microbial activity.

CONSTRUCTING THE PILE

Most information on composting encourages layering of materials. A green layer of grass or vegetable discards alternates with a layer of brown, dried material, such as leaves. The green material is a source of moisture and leachable nutrients that help microbes start the decomposition of the dry leaves.

Layering is a lot of trouble because most gardeners cannot find all the components for a good pile at one time. If the difficulty of creating a properly layered pile prevents you from composting, take heart. A pile of leaves makes a great compost heap, and simply adding water to the pile is sufficient to start the process. Keep the pile moist but not soggy. Shredded materials compost faster. If you are still cutting the grass, mix some clippings into the pile. Because the microorganisms require large amounts of nitrogen for decomposition, mix about one pound of 10-10-10 garden fertilizer into every cubic yard of moistened compost.

Sometimes recommendations are given to introduce soil in the layering process to add more microorganisms, and you can even purchase a starter kit of microbes for your pile. I don't believe this is necessary. The microbial flora of leaves and other organic material is naturally very rich.

MANAGING THE PILE

Decomposition will be reflected by the rise in temperature in the center of the pile. During warm weather several weeks after construction, the pile should be turned, mixing the heated inner portion with the cooler, less decomposed, outer material. In cool weather, avoid turning the pile, as this releases heat. Wet the pile if you cannot squeeze water from a handful of leaves. A compost pile that does not heat could be due to several factors: too little or too much water, improper aeration, packing the pile too tightly, making the pile too small.

The science of composting can get pretty involved, with a lot of discussion about enhancing the decay process by adding the right mix of compost materials to obtain the right carbon to nitrogen ratio. At home, I prefer the slow steady method, being willing to wait six to twelve months for the final product.

This fall, compost instead of bag. Your reward will be rich, productive soil next year.

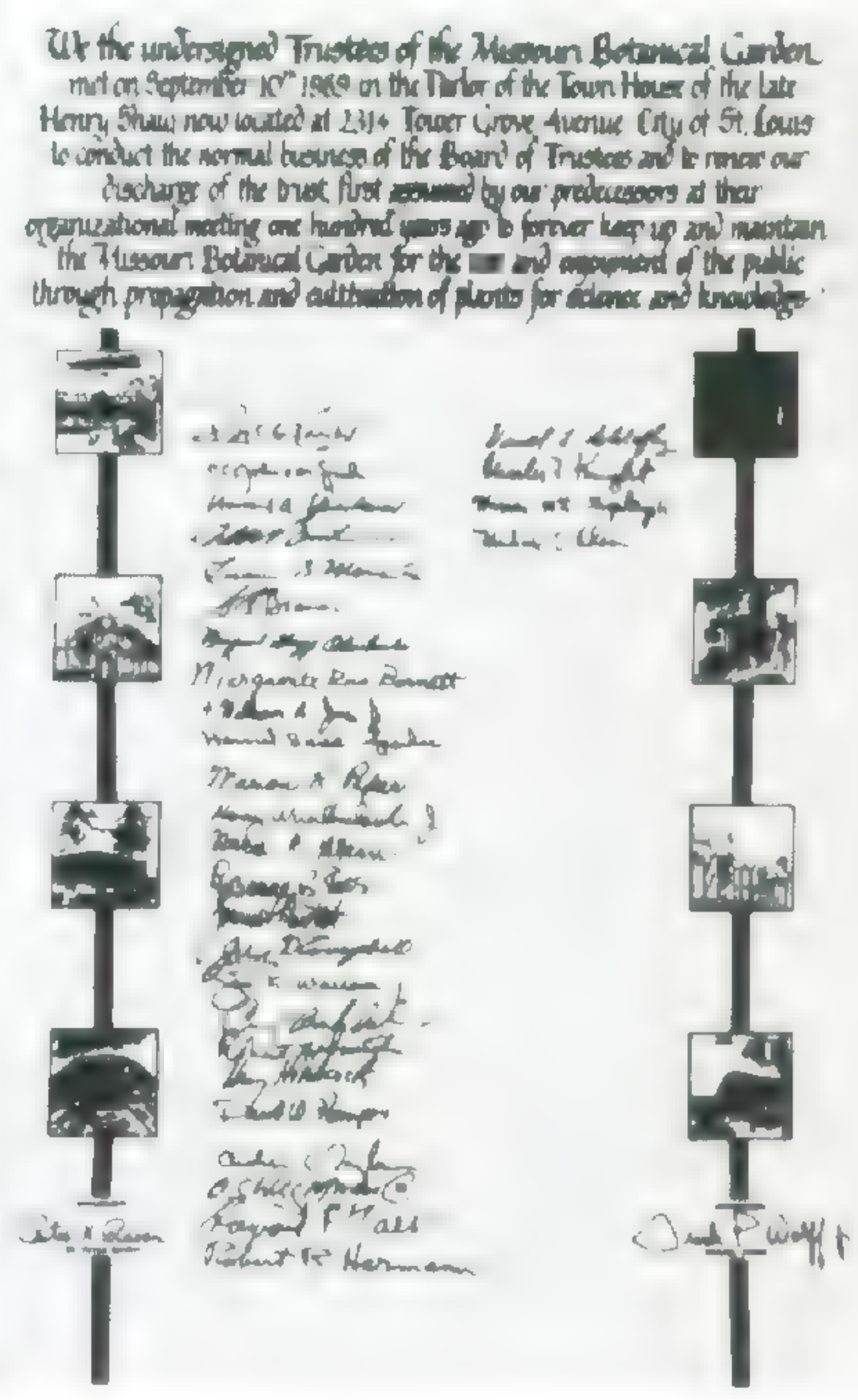
—Steven D. Cline, Ph.D.

TRUSTEES HOLD CENTENNIAL MEETING / September 10, 1989

Near right: Trustees meet in Henry Shaw's parlor. Seated at table, left to right: Dr. Marshall R. Crosby; Robert E. Kresko, president of the Board; Dr. Peter H. Raven; William H. T. Bush.

Far right: The Centennial proclamation.

RICHARD BENKOF


We the undersigned Trustees of the Missouri Botanical Garden
met on September 10th 1989 in the Parlor of the Town House of the late
Henry Shaw now located at 2314 Tower Grove Avenue City of St. Louis
to conduct the normal business of the Board of Trustees and to renew our
discharge of the trust first assumed by our predecessors at their
organizational meeting one hundred years ago to forever keep up and maintain
the Missouri Botanical Garden for the use and enjoyment of the public
through propagation and cultivation of plants for science and knowledge.

CENTENNIAL
Board of Trustees
1889 1989
Missouri Botanical Garden

On a Sunday afternoon this past September, an historic occasion took place in the Garden's Administration Building. The tall red brick structure, built in 1849, has been located at the south end of the Garden on Tower Grove Avenue since 1891. It was formerly Henry Shaw's townhouse; in his will, Mr. Shaw set aside funds to move the building to the Garden.

There, at 4 p.m., in the second floor room that is now the office of the director of development, the Garden's present Board of Trustees held its Centennial meeting. They were reminded of the events of a meeting a century earlier by Dr. Marshall R. Crosby, assistant director of the Garden:

"The Board of Trustees held its very first meeting exactly one hundred years ago today, at this very hour, 4:00 p.m., in this very house. The house was then located downtown on the southwest corner of Seventh and Locust, but we do not have a record of what the interior was like at that time. Therefore, we are not sure where they met, but they may well have met in this very room, which we now call Henry Shaw's parlor . . .

"The very first motion was made by Henry Hitchcock, the grandfather of the emeritus trustee Henry Hitchcock . . . who proposed the most important matter of business of the day. This motion reviewed many provisions of the will, listed those Trustees present, and moved that the Trustees 'each and all . . . jointly and severally accept the said devise and bequest of the said real and personal property. . . for the uses and purposes said will declared.' After full discussion, the motion was passed unanimously. With this the Board formally assumed the care of the Garden.

"Little other business was transacted that day, though the secretary, Mr. Pettus, was authorized to procure a book into which to have the minutes written. This must be the first authorization of an expenditure by the Trustees."

The 1989 Board transacted routine business, enjoyed a report from Dr. Raven on his recent trip to China, and signed a handsome illustrated proclamation, which states:

"We the undersigned Trustees of the Missouri Botanical Garden met on September 10th, 1989 in the Parlor of the Town House of the late Henry Shaw, now located at 2314 Tower Grove Avenue, City of St. Louis to conduct the normal business of the Board of Trustees and to renew our discharge of the trust, first assumed by our predecessors at their organizational meeting one hundred years ago to forever keep up and maintain the Missouri Botanical Garden for the use and enjoyment of the public through propagation and cultivation of plants for science and knowledge."

FROM THE *CONGRESSIONAL RECORD*, United States of America:

Proceedings and Debates of the 101st Congress, First Session, Vol. 135, No. 112:

WASHINGTON
Thursday, September 7, 1989
House of Representatives
COMMEMORATING THE 100TH ANNIVERSARY OF THE BOARD OF TRUSTEES OF THE MISSOURI BOTANICAL GARDEN

HON. JACK BUECHNER
of Missouri
in the House of Representatives

MR. BUECHNER. Mr. Speaker, I rise today to commemorate the 100th anniversary of the Board of Trustees of the Missouri Botanical Garden of St. Louis, Missouri. Voyager II hurtles into the darkest reaches of our universe and sends back images of nature beyond what man can even imagine. We here on Earth sit in amazement and long to know more —to extend that metaphysical chord "A man and his universe."

Yet in St. Louis there has been for 130 years a special place for man to seek out his own planet and to discover the flora that in turn have given him food, cures for his diseases, the paper that his history is kept upon, and most important the air that keeps him alive.

The Missouri Botanical Garden, also known as "Shaw's Garden," is the oldest botanical garden in the United States in continuous operation. Internationally

CONGRESSIONAL RECORD
continued

recognized for the quality of its horticultural presentations, it stands out particularly for its educational programs and, most important, for its scientific research. Its staff and administrators have gone around the world assisting or helping to start similar institutions dedicated to man and nature.

Most recently, this Garden, under the leadership of Dr. Peter Raven, has achieved further acclaim as it works to preserve and protect the tropical forests of the planet Earth—and in doing so helping to determine the fate of mankind.

As concern for the environment has moved to the forefront of public awareness, the Garden has played a prominent part in helping to define the importance of maintaining a biologically diverse and balanced ecosystem. Established in 1859 and directed for 30 years by a private St. Louis merchant, Henry Shaw, it was bequeathed to the public in perpetuity upon his death in 1889, when its care was entrusted to a Board of Trustees. ...I am certain that Mr. Shaw would be proud of what the tireless work and dedication of the caretakers of his Garden have wrought. It is certain his spirit still tenderly touches the plants, the trees and blossoms, and the waters of "his garden."

To those of us who know and love this place, it is more than just a garden or a center of learning. It is a refuge from the turmoil of an often ugly world, a gentle reminder of what Eden must have been, and a continuing celebration of the glorious beauty of nature.

As we strive to remember our true role in the grand scheme of things, to recover that which we seem to have lost, it is well to look to the example that Missouri Botanical Garden has set. For there is no finer example of what good and true stewardship means than that which has been set by the Missouri Botanical Garden.

I ask each of my colleagues to join me in celebrating this 100th anniversary of the Board of Trustees of the Missouri Botanical Garden and in saluting those who continue to work to ensure that our continuing journey through the cosmos is not devoid of beauty. Let us...pledge ourselves to the same level of commitment, strive to attain the same attention to detail, and show the same love and devotion to our Earth that has been shown by the caretakers of the Missouri Botanical Garden.

Edited for publication in the Bulletin.

Garden Celebrates Edgar Denison's 85th Birthday

The 85th birthday of Edgar Denison, a long-time St. Louis resident and expert on the wildflowers of Missouri, was celebrated September 30 at a luncheon held at the Garden's Shaw Arboretum in Gray Summit. Denison has been associated with the Garden as an adviser, lecturer and guide for many years.

Denison is perhaps best known for his *Missouri Wildflowers*, a field guide to wildflowers of Missouri and the region, published by the Missouri Department of Conservation. *Missouri Wildflowers*, whose fourth edition is now in press, is the best-selling book ever sold by the Department.

"Edgar Denison is a valuable friend of the Arboretum," said John Behrer, superintendent of the Arboretum. "We have benefited greatly from Edgar's expertise on wildflowers and native plants, and we are delighted to have the opportunity to honor him now."

Denison's home on East Adams in Kirkwood boasts an extensive and beautiful wildflower garden, unequaled in St. Louis, which he has cultivated over the 56 years he has lived there. He has donated plants from his garden to the Arboretum and other locations.

In addition to his work at the Arboretum, Denison is providing a tremendous service to the Garden by translating the correspondence of Dr. George Engelmann, the German-born St. Louis physician, botanist and adviser to Henry Shaw, who made pioneering studies of many plants of the western U.S. Engelmann's letters, written in the 19th century German script called *fraktur*, are extremely difficult for modern-day transcribers to decipher. Denison, who was born in Germany, is uniquely qualified to do the transcription.

WILLIAM DAVIT

John Behrer (left) with Edgar Denison

At the birthday luncheon, an oak bench was dedicated in honor of Edgar Denison. The bench will be placed in the wildflower garden planned for the Pinetum area at the Arboretum.

Arboretum Closed during Deer Hunting Season

Although there will not be a managed deer hunt on the Arboretum this year, the Arboretum will be closed to visitors during deer firearms season, November 11 to November 19, as an added safety precaution. As usual, the four square miles of the Arboretum (2400 acres) will be patrolled during the hunting season.

Planned Giving

Sidney Cohen Bequest

A long-time contributor to the Garden has ensured that his support for the Garden will continue undiminished through an endowment bequest. Sidney Cohen, a local philanthropist who supported many St. Louis institutions over the years, has provided an endowment to the Garden as a final gift to perpetuate his love of the community, and in particular its cultural institutions. Mr. Cohen died on February 20, 1989.

His association with the Garden dates from the early seventies when he and his wife, through the Sidney and Sadie Cohen Foundation, became interested in the area that became the Cohen Amphitheater. Their love of the Garden over the years provided for a spectrum of gifts that included library acquisitions and plants, the Sadie M. Cohen courtyard in memory of Mrs. Cohen, as well as the Cohen Amphitheater. Mr. Cohen's final contribution culminates a lifelong interest in libraries and education.

Every year the proceeds from the Cohen endowment gift will allow the purchase of an important book for the Library. To memorialize Mr. Cohen's contribution, each of these books will feature a special nameplate indicating the origin of the gift made possible by the Sidney and Sadie Cohen Foundation.

Bequests play an important part in making special programs possible, and the Garden is grateful for this significant support.

NOVEMBER

1-3 WEDNESDAY-FRIDAY

Holiday Preview Sale

9 a.m. to 7:30 p.m., Garden Gate Shop. Members receive 20% off, all three days. Shop early!

1-26 WEDNESDAY-SUNDAY

Tropical Rain Forests Exhibits

9 a.m. to 5 p.m. daily, Ridgway Center. Posters, photographs, and displays highlight the biological diversity and environmental crisis in the tropics, and the Garden's world-renowned research program. Free with regular Garden admission.

3 FRIDAY

Members' Preview: Fall Flower Show and Climatron Restoration

5 to 8 p.m., Orthwein Floral Hall and Climatron. Come enjoy a sneak preview of the chrysanthemum display, and see the Climatron construction in progress! Entertainment, cash bar. Dinner buffet will be available in Gardenview Restaurant. Docents will be on hand in the Climatron to answer questions. For Members only; see flyer mailed recently to all Members.

4 SATURDAY

Deck The Halls

2 p.m., Shoenberg Auditorium. First in a series of three lectures sponsored by *Country Home* Magazine. (See November 18, December 2.) Floral designers will share creative decorating ideas for the holidays, with a slide show featuring decorated homes, and a "hands-on" demonstration. Tickets at the door: $2.50 Members, $3 non-members.

4-5 SATURDAY-SUNDAY

Public Preview of Climatron Restoration

9 am. to 5 p.m., Climatron. Come see the construction in progress, and get a preview of the wonderful new displays that will open next spring. Docents will be on hand to answer questions between 11 a.m. and 2 p.m. Free with regular Garden admission.

Missouri Botanical Garden
CALENDAR OF EVENTS
November-December 1989

NOVEMBER 4-26 / Fall Flower Show

9 a.m. to 5 p.m. daily, Orthwein Floral Hall. A spectacular array of chrysanthemums in a quaint early American country setting. Regular Garden admission. *Members' Preview—See November 3.*

DECEMBER 9—NEW YEAR'S DAY Holiday Flower Show

9 a.m. to 5 p.m. daily, Orthwein Floral Hall. Poinsettias, begonias, kalanchoes, dusty millers, and lovely holiday trees highlight a delightful Currier & Ives scene. Regular Garden admission. *Members' Preview—See December 8.*

NOVEMBER & DECEMBER

WALKING TOURS
Now All Tours Begin at 1:00 p.m.

Join us every Tuesday, Saturday and Sunday at 1:00 p.m. for a tour led by Garden Guides. Enjoy the winter landscape and learn about architecture, history, sculpture and horticulture at the Garden. Meet at the Ridgway Center ticket counter. Free with regular Garden admission.

10 FRIDAY

Gardens and Parks of the Wo
"Gardens of Ireland"

7 p.m., Shoenberg Auditorium.
slide lecture by Lord William Br
dan Parsons, 7th Earl of Rosse,
describes the captivating charm
gardens on the Emerald Isle. $1
Members, $2 non-members.
See page 13.

17 FRIDAY

Gardens and Parks of the Wo
"20th Century English Garde

7 p.m., Shoenberg Auditorium.
Final slide lecture in the series,
John Elsley, assistant vice presi
of George W. Park Seed Compa
and designer of the English Woo
land Garden at MBG. $1.50 Me
bers, $2 non-members.

18 SATURDAY

Deck The Halls

2 p.m., Shoenberg Auditorium. See November 4 for details.

DECEMBER

2 SATURDAY

Deck The Halls

2 p.m., Shoenberg Auditorium. See November 4 for details.

3 SUNDAY

Book Signing

10 a.m. to 1 p.m., Ridgway Cent
Celebrate the publication of *A W*
of Plants, a splendid new book o
the Garden (see page 5), and me
the authors and photographer.
Watch your mail for details. Free
with regular Garden admission.

4 MONDAY

"Gardens and Castles of Irelar

7 p.m., Shoenberg Auditorium.
Patrick Bowe, guide for the Mem
bers' tour in May 1990, offers an
exciting preview. *See page 13.* Fre

-31 TUESDAY-SUNDAY

ver Grove House Decorations

.m. to 4:30 p.m. daily (last tour
ins at 4 p.m.). Tower Grove
use is decorated in Victorian
endor for the holidays. (Closed
ristmas Day.) Tours are free to
mbers, $1.50 for non-members,
) for children.

TUESDAY

ndlelight Tour

0 to 7:30 p.m., Tower Grove
use. Seventh annual tour, $5.50
person. Reservations are
uired; see story below.

-9 THURSDAY-SATURDAY

cember Plant Sale

.m. to 7:30 p.m., Thursday and
day; 9 a.m. to 5 p.m., Saturday;
rden Gate Shop. Members
ceive 20% off all gifts and plants,
three days. See page 16.

THURSDAY

liday Luncheon

30 a.m. to 1 p.m., Tower Grove
use Tea Room. See story below.

8 FRIDAY

Members' Preview: Holiday Flower Show

5 p.m. to 8 p.m., Orthwein Floral Hall. Join us for a festive early look at the holiday show. Entertainment, cash bar. Dinner buffet will be available in Gardenview Restaurant. For Members only; watch your mail for details.

Holiday Luncheon

11:30 a.m. to 1 p.m., Tower Grove House. See below for details.

11 MONDAY

Holiday Luncheon

11:30 a.m. to 1 p.m., Tower Grove House. See below for details.

12 TUESDAY

Holiday Luncheon

11:30 a.m. to 1 p.m., Tower Grove House. See below for details.

14 THURSDAY

Supper With Santa

Begins at 5:30 p.m., Ridgway Center. Come for dinner and spend the evening with clowns, jugglers, Santa Claus and more surprises! Reservations are required; call 577-5125 beginning Monday, November 27. $10 per person.

Holiday Luncheon

11:30 a.m. to 1 p.m., Tower Grove House. See below for details.

15 FRIDAY

Holiday Luncheon

11:30 a.m. to 1 p.m., Tower Grove House. See below for details.

16 SATURDAY

Santa Lucia Celebration

2 to 5 p.m., Ridgway Center. Folksongs, carols, folkdancing, a candlelight procession and a Julbutik (Swedish boutique), all in honor of the Swedish saint Santa Lucia. Cosponsored by the Swedish Council of St. Louis. Regular Garden admission.

21 THURSDAY

Supper With Santa

Begins at 5:30 p.m., Ridgway Center. See December 14 for details.

25 MONDAY

Christmas Day

The Garden is closed.

NOVEMBER 8 / MEMBERS' DAY
"Memories of 1904"

2 p.m., Shoenberg Auditorium. Slide lecture by Mrs. J.C. Horner, member of the 1904 World's Fair Society. The Rivertown Barbershop Quartet will sing turn-of-the-century favorites; the Gardenview Restaurant will feature a special "Victorian Lunch." Limited seating, for Members only. Free.

DECEMBER 9 / MEMBERS' DAY
"A Holiday Garland of Tales"

11 a.m. and 1 p.m., Shoenberg Auditorium. Performances by the Imaginary Theatre Company of the Repertory Theatre of St. Louis, featuring tales from foreign lands. A treat for the whole family! Limited seating, for Members only. Free.

NEWS FROM TOWER GROVE HOUSE

Holiday Luncheons

Tower Grove House will again be decorated in Victorian splendor for the holidays and open to visitors from Tuesday, December 5 through Sunday, December 31 from 10 a.m. to 4:30 p.m. Both Tower Grove House and the Garden will be closed Christmas Day.

Tower Grove House Auxiliary's Tea Room will feature special luncheons on Thursday, December 7; Friday, December 8; Monday, December 11; Tuesday, December 12; Thursday, December 14; and Friday, December 15; between 11:30 and 1 p.m. Guests will be greeted with hot spiced cider.

For additional information and reservations call 577-5150. Reservations will be accepted beginning Wednesday, November 15, between 9 a.m. and 12 noon. Payment must be received no later than Friday, December 1, 1989.

Candlelight Tour

The Seventh Annual Candlelight Tour, sponsored by the Tower Grove House Auxiliary, will be held on Tuesday, December 5, 1989, between 4:30 and 7:30 p.m. Reservations may be made by mailing in the form below. For additional information call Tower Grove House, 577-5150. The fee includes a candlelight tour of the decorated house, plus refreshments in the Tea Room. Enter at 2345 Tower Grove, where your name will be registered. Parking is available across the street at Tower Grove Baptist Church.

Candlelight Tour

Please make____________reservations for the Candlelight Tour, Tuesday, December 5, at Tower Grove House between 4:30 and 7:30 p.m. Enclosed is my check for $__________, at $5.50 per person. Please make checks payable to: Tower Grove House Auxiliary. Check must be received no later than December 1, 1989.

NAME______________________________

ADDRESS___________________________

CITY________STATE________ZIP________

PHONE_____________________________

Mail to: Tower Grove House,
P.O. Box 299, St. Louis, MO 63166

Ask the Answer Service

Bringing Plants Indoors

Do you have a plant question? Call the Horticultural Answer Service, Monday through Friday, 9 a.m. to noon, at ***577-5143.***

Q. *I have several Boston ferns that spend the summer outdoors. Winters are spent indoors hanging over the hot tub, and the fronds grow very long. Can I prune them back just enough to shorten them, without hurting the plant?*

A. You won't hurt your Boston ferns, but you will affect their appearance, destroying the graceful aspect of the healthy, mature fronds. Rather than trying to alter plants to suit the site, consider choosing a plant whose habit is compatible with the existing conditions. 'Compacta' and 'Fluffy Ruffles' are Boston fern cultivars with compact habits. The Dallas fern is a close relative whose fronds rarely exceed 18 inches in length. It is a more forgiving plant as well, being better suited to growing indoors. Perhaps the most tolerant of being indoors is the holly fern *(Cyrtomium Falcatum)*. It is a slow-growing plant, eventually reaching two feet at maturity. It thrives in a cool sunroom but will tolerate lower light levels. It prefers moist air, but adapts to average indoor humidity levels. Holly ferns require a well-drained potting mixture high in organic matter. Keep the soil evenly moist during the summer, but water only when the soil becomes dry during the winter. Repot as needed in early spring just as the new fronds unfurl.

Q. *Please help my cyclamen plant! All the leaves are starting to turn yellow and die. If this keeps up, I won't be able to continue to display it on my dining room table.*

A. You are probably keeping your cyclamen too warm, and chances are it is not receiving enough light, either. At this time of year, cyclamen should receive as much sunlight as possible. An unobstructed south window is ideal. Most important, cyclamen should be provided with cool night temperatures of 40° to 50°F. Daytime temperatures below 70°F are preferred. Be certain you don't overwater your cyclamen, as this also may cause yellowing. Cyclamen should be watered when the surface of the soil feels dry to the touch. Don't let the bottom of the pot sit in water. Fertilize very other week with a water-soluble "blossom booster" house plant formulation. Fertilizer should be discontinued in spring after your plant stops flowering and begins to enter its dormant state.

Q. *Last year when I forced some hyacinths, the bulbs flowered down inside the leaves and hardly grew stalks at all. What did I do wrong?*

A. When you force potted hyacinths, they require a minimum of 12 to 15 weeks of cold dark storage at temperatures between 45° and 50°F. This process is necessary if the bulbs are to develop adequate root and sprout growth. At the end of the cold storage period, when the pale yellow shoots are one or two inches high, bring the bulbs indoors into subdued light until the sprouts turn green. Temperatures at this stage should also be kept cool, about 50°F if possible. Excessively high temperatures at this stage are the likeliest cause of your "squatty" bulbs. Once the sprouts green up normally, your bulbs may be placed in full sunshine to bring them into bloom. Even in this latter stage, cool night temperatures will help to produce the best results.

TIMELY TIPS:

- Consider using a Norfolk Island pine as an alternative to a purchased Christmas tree.
- If variegated leaves on houseplants turn green, move them into brighter light.
- Tulips can still be planted until the ground freezes.
- Mulching late-planted trees, shrubs, and bulbs will help keep the ground unfrozen a little longer, encouraging extended root growth.
- Refrain from fertilizing most houseplants during the shortest days of winter.
- Apply superphosphate to perennials when mulching them for the winter. This will encourage better bloom next year.
- Keep mulch back from the trunks of trees and shrubs to prevent damage from mice and voles.
- Don't forget to water azaleas and evergreens before the ground freezes up for winter. This is also true for any newly planted trees and shrubs.
- A tablespoon of sugar added to the water will help hold berries on holly branches used for indoor decorations.
- Always use tepid or room temperature water when watering houseplants.
- Observe winter silhouettes of deciduous trees. Species with interesting shapes may be just the touch your winter landscape is lacking.

—Chip Tynan, The Answer Service

Campaign for the Garden

UPDATE: As of September 30, 1989 the Garden's $18 million capital campaign has raised $15,761,590 in gifts and pledges.

Next spring, we will break ground for the Center for Home Gardening Pavilion, the last major construction item in this campaign. Planning and development of visitors' services are already well underway.

Dr. Steven Cline, the Center's Manager, recently returned from a visit to several demonstration gardens in England. He views our planned reference area as a critical element in using the Center:

"While much of the Center's space will be devoted to demonstration, the reference area will allow visitors to research new ideas in detail and to plan their personal gardening strategies. Many books on general gardening topics are widely available, but the more technical references often are not. Collecting these types of materials will be one of the Center's main strengths. We will also display commercial catalogues of tools, seeds and other gardening materials to help visitors plan and locate products."

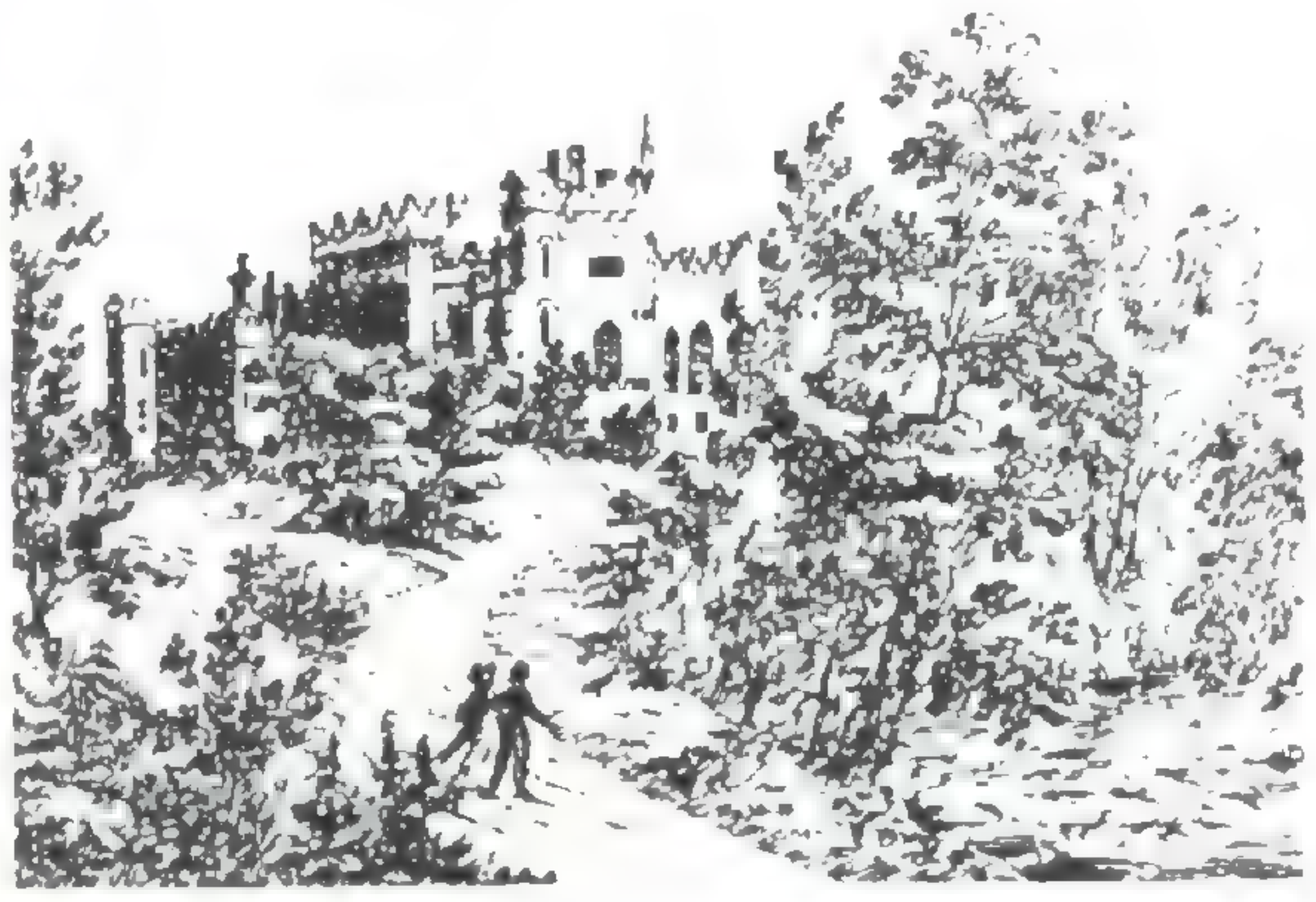
Some types of information will best be handled by computer. One proposed goal is to organize hardy plant selections for the homeowner by horticultural characteristics and practical uses, to aid in answering the question, "What should I plant in this location?" Although still in the planning stages, many potential uses for computerized resources are being considered.

The Center also looks toward strengthening ties with the Missouri Cooperative Extension Service, the state's advisory agency on agriculture and horticulture.

FROM THE MEMBERSHIP OFFICE

CASTLES AND GARDENS OF IRELAND

MAY 19—JUNE 2, 1990



Birr, Co. Offaly, Ireland

The castles and gardens of Ireland reflect a rich heritage of aesthetic and cultural achievement. The Irish landscape will beguile you with its lush greenery and magnificent gardens. Ancient trees, semi-tropical plants, and rare flowers are as plentiful as the shamrock in the Emerald Isle.

The tour itinerary is designed to show you the best of Ireland's castles and gardens, both public and private. The tour departs from St. Louis. Highlights include:

- A tour of Glin Castle, a two-hundred-year-old house containing an historic collection of Irish furniture and paintings. Includes a reception/dinner with the Knight of Glin, Desmond Fitz-Gerald, and Madame Fitz-Gerald.
- A tour of historic Birr Castle, whose 150 acres include 20th century formal garden "rooms" designed by the present dowager Countess of Rosse, with one of Europe's outstanding collections of rare Asian trees and shrubs. Lunch is hosted by the Earl and Countess of Rosse.
- A tour of Muckross House and Gardens, with magnificent views of the Lakes of Killarney and MacGillycuddy's Rocks, the highest mountains in Ireland.
- A morning drive over the Caha Mountains to spectacular Bantry Bay, and on to the island of Ilnacullin, whose unusual gardens were laid out in the Italian style by the famous English garden architect, Harold Peto, in 1910.
- A visit to Creagh and the garden made by Peter Harold-Barry around his Georgian house.
- Visit Currabinny and Mrs. Michin's garden, one of the finest small gardens in Ireland.
- A visit to Annes Grove, woodland gardens. Includes many plants raised from seed brought back from the Himalayas.
- Lunch at the 18th century Cappoquin House, the home and garden of Sir Richard and Lady Keane.
- A visit to Lismore Castle, a battlemented castle designed for the Duke of Devonshire by Joseph Paxton.
- A drive to Waterford to visit the magnificent 100-acre garden of Mount Congreve.
- A visit to Kilmokea House, which has a wild garden, and formal gardens around the house.
- Spend a morning in Kilkenny, one of Ireland's most attractive small cities, and visit its medieval cathedral, castle, and alms houses. Lunch at Marlfield House Hotel, one of Ireland's best country hotels, with its prizewinning gardens.
- Visit Mount Usher, built on the banks of the river Vartry, one of Ireland's best Robinsonian "wild gardens" and a plant collector's paradise.
- Visit Beechpark, a privately owned garden, and Butterstream, a fine example of a modern compartmentalized garden.
- A visit to Shankill and Old Couna Cottage, owned by Rosemary Brown, one of Ireland's best horticulturalists.
- Tour Powerscourt, an enormous Victorian garden with terrace, statuary, and ponds set against the backdrop of the Wicklow Mountains.
- Enjoy lunch with the owner of Fernhill, a charming Victorian house on a hill overlooking Dublin Bay, and one of the most important gardens in Ireland.

Watch your mail for more details on this marvelous trip, or call Brenda Banjak at 577-9517.

IRELAND PREVIEWS

Lord Rosse to Lecture November 10

Don't miss this delightful slide lecture, particularly if you are considering joining the May tour of "The Gardens and Castles of Ireland". Lord Rosse resides at Birr Castle in County Offaly, Ireland. Botanists from around the world visit the gardens at Birr Castle for the purpose of plant study. See page 10 for details.

Patrick Bowe to Lecture December 4

Patrick Bowe, Irish architect, garden designer and historian, and tour guide, will present an exciting preview of "The Gardens and Castles of Ireland" tour. See page 10 for details.

RICHARD BENKOF

Bobby Short (center) with Andrew Taylor and Nora Stern, Benefit co-chairmen.

Encore!

Cool breezes and a beautiful star-filled sky set the stage for 600 Garden Members and guests who attended the Garden Centennial Benefit on September 9. Party goers were enchanted by the tent decor, an elegant fantasy designed by Frank Scheithauer of Famous Barr, and thrilled by the songs of the internationally acclaimed cabaret entertainer, Bobby Short. Guests were served a gourmet dinner prepared by the Gardenview Restaurant, and they danced to the exciting sounds of the Ritz orchestra.

This Centennial Celebration of the establishment of the Board of Trustees was generously sponsored by Famous Barr Company. We extend our deepest appreciation to Famous Barr and to the Benefit patrons for their generous support.

The Benefit, chaired by Nora Stern and Andrew Taylor, netted over $100,000 for the Garden's capital fund drive.

DEBBIE FRANKE

(Left to right): Ana Maria Giulietti, Blanca León, Nidia Cuello, Sandra Visnadi, Gerardo Aymard. Not pictured: Nelson Zamora, Rodolfo Dirzo.

Post Graduate Fellows from Latin America

Six outstanding young scientists from Latin American countries have been awarded postgraduate fellowships by the Garden. These fellowships are supported by a grant from the Jessie Smith Noyes Foundation. The postgraduate program at the Garden provides training in tropical botany, with emphasis on plant systematics and environmental studies.

The Garden seeks to provide the range of expertise that allows young scientists to acquire the skills that will make them competitive in research, education and policy-making. The urgency of studying and preserving tropical forests has never been greater, and one important way of meeting the crisis is to increase the numbers of trained botanists from developing tropical countries. Training at the graduate and postgraduate levels has been a priority of the Garden for many years.

The current group of visitors includes:

Gerardo Aymard (Guanare, Venezuela), a forester by training, is working on a revision of the Venezuelan species of *Canavalia* (Fabaceae). *Canavalia* is economically important as a source of protein for forage. His wife, Nidia Cuello, is taking advantage of Gerardo's visit at the Garden to carry out general plant identification for the Inventory of the Natural Resources of the Venezuelan Guayana, a joint project of two Venezuelan institutions.

Ana Maria Giulietti (São Paulo, Brazil), a professor at the University of São Paulo, is working on the family Eriocaulaceae for several Floras and on a revision of the genus *Leiothrix*. Professor Giulietti, who is actively involved in graduate training, research, and conservation in Brazil, is working with Nancy Hensold on revisions of the genera *Rondonanthus*, *Comanthera*, and *Carptotepala*, all from northern South America.

Blanca León (Lima, Peru) is preparing a botanical catalogue of the vascular aquatic plants of Peru aimed at improving general knowledge of the taxonomy of these important groups. Her husband, Ken Young, is using this opportunity to conclude his doctoral dissertation on biogeography of timberline forests in Peru.

Sandra Visnadi (São Paulo, Brazil) a young bryologist from the Instituto de Botânica in São Paulo, is in St. Louis to carry out research on the moss genus *Lindigia*.

Nelson Zamora (San José, Costa Rica), is working on the treatment of the Fabaceae-Mimosoideae for the Manual of the Flora of Costa Rica, a joint program between the Garden and Museo Nacional de Costa Rica. Nelson is a professor at the Universidad Nacional de Costa Rica. The Leguminoseae or Fabaceae is an economically important family. Nelson's background is in forestry.

Rodolfo Dirzo, an ecologist from the Universidad Nacional Autónoma de Mexico, will arrive at the Garden later this year. He will prepare updated reviews of rates and trends of deforestation, bioeconomic costs of deforestation, and critical areas for conservation. He will also carry out research on plant-animal interactions.

Forero and Gentry Publish Landmark Study

Enrique Forero, director of research, and Alwyn H. Gentry, curator, have recently concluded a very successful 15-year cooperative program of research and exploration in the tropics with the publication of the *Annotated Checklist of the Plants of the Chocó Department, Colombia*. Chocó is one of the wettest and botanically least known regions of the world.

Forero and Gentry started this program in 1973 with a five-day visit to the Bahia Solano area of Chocó. They continued their explorations over a ten-year period (1973-1983) as a cooperative program between the Garden and the Colombian National University, with support from the U.S. National Science Foundation and the Fondo Colombiano de Investigaciones Científicas—COLCIENCIAS.

The book's title in Spanish is "Lista Anotada de las Plantas del Departamento del Chocó, Colombia". It was published with financial support from the World Wildlife Fund—U.S., as No. 10 in a series entitled "Biblioteca José Jerónimo Triana," a publication of the Institute of National Sciences of the Colombian National University where Forero was a professor for 21 years before joining the staff of the Missouri Botanical Garden as director of research in 1986.

Forero and Gentry, in collaboration with Roberto Jaramillo-Mejía and many other botanists and students from the U.S. and Colombia, carried out 28 expeditions and gathered over 14,200 collection numbers of 80,000 herbarium specimens.

The published list includes 3,866 species of flowering plants and ferns, but the authors emphasize that this is only about two-thirds of the total number of species estimated to occur in the region. Many collections are still under study by specialists, and many areas of the Chocó Department are still in urgent need of additional botanical exploration before they disappear.

During the course of preparation of this checklist, Forero and Gentry published 29 papers either independently or under joint authorship. "This is, without doubt, one of the most successful cooperative programs between North American and Latin American institutions, and serves as an example of the importance of this type of partnership in research and exploration," says Forero. "We are very pleased to have been able to complete this publication which we hope will prove useful to botanists, ecologists, phytogeographers, conservationists and decision makers."

P · R · O · F · I · L · E

JONATHAN LOVETT

Resident Botanist in Tanzania

KING SCHOENFELD

Jonathan Lovett is an Englishman who came to the Garden by way of Tanzania. A native of Salisbury, England, Jon earned his B.A. from Oxford University, Pembroke College, in 1979, and is pursuing his Ph.D. from University College of North Wales. In 1979 Jon went to Tanzania to work on the moist forests, and in 1983 worked for the World Wildlife Fund on forest conservation in that country. In 1985 Dr. Peter Raven offered him a position as resident botanist in Tanzania for the Garden.

Jon, his wife Jill, and their two-year-old daughter Primrose live in Mbeya in Southern Tanzania, and he visits the Garden for several weeks every year. The Lovetts spend a great deal of their time in the field collecting and studying botanical specimens. Jon is editing a book for Cambridge University Press on *Biogeography and Ecology of the Forests of Eastern Tanzania*. In addition, Jon is a research associate of the Department of Botany at the University of Dar-es-Salaam, where he teaches taxonomy and plant systematics.

Faculty and students collaborate closely with Jon on the Garden's research project for the National Cancer Institute.

Jon also serves on a committee of the year-old Wildlife Conservation Society of Tanzania. The Society is patronized by the president of the Republic, and is leading the fight to stop the killing of elephants by poachers.

"Tanzania is a beautiful country, and extraordinarily interesting botanically," Lovett said during a recent visit to the Garden. "From the peak of Kilimanjaro to the depths of Lake Tanganyika, the country encompasses the five main vegetation zones of tropical Africa and harbors about 10,000 plant species, of which 10 to 12 percent are endemic."

Lovett sees the primary focus of his work in Africa as encouraging further development of botanical research and conservation by Tanzanians. To meet this aim, the Garden's Tanzania program is working closely with the Tanzanians to help train botanists, build information resources, develop conservation programs along with compatible economic development, and create public awareness about the importance of environmental issues.

Euphorbiaceae Conference Held at Garden

Scientists from around the world gathered at the Garden August 14-16 to discuss the Euphorbiaceae family of plants. The gathering, which attracted some 30 specialists from 10 countries, increased the understanding of this very important, but relatively poorly known, plant family.

The Euphorbiaceae family, with some 8,000 species, is one of the world's largest and most diverse families of flowering plants. It is represented by herbs, shrubs, trees, vines, and even one floating aquatic species. Found in nearly every region of the world, it is primarily tropical and subtropical. Its best known species is the poinsettia, the popular Christmas plant. Other Euphorbiaceae include rubber, castor oil, and cassava, one of the tropics' main food crops and the source of tapioca.

"The Euphorbiaceae family is very important to the world economy. This meeting allows experts from around the world to discuss their research findings and keep abreast of the latest research developments," said Dr. Michael J. Huft, assistant curator at the Garden and coordinator of the conference.

The St. Louis meeting marked the first presentation of details of a new system for classifying the family. Grady Webster of the University of California, Davis, presented the details of, and evidence for, his classification system for the first time ever. This most recent—and widely accepted—system of classification recognizes five subfamilies within the family and relies on seed number, latex constituents, and pollen characteristics for classifying a genus into the proper subfamily.

A major result of the conference will be a volume in the Missouri Botanical Garden Monograph Series.

The Euphorbiaceae Family is featured on the beautiful full-color poster inserted into the Garden's 1990 Calendar, available in the Garden Gate Shop.

RICHARD BENKOF

CONFERENCE PARTICIPANTS (Front Row, l-r): ***Alberta Mennega, R. N. Kapil, Line Rossignol, Michael Huft, Geoffrey Levin, Pilar Franco, Paula Rudall.*** *(Middle rows, l-r):* ***Martial Rossignol, Attila Borhidi, Bijan Dehgan, Chris King (projectionist), David Seigler, Grady Webster, Erich Hecker, John Beutler, W. Scott Armbruster, Lynn Gillespie, Michael Gilbert.*** *(Top row, l-r):* ***Antonio Allem, Daryl Koutnik, Robert Haicour, Alan Radcliffe-Smith, Uwe Jensen, John Hayden, Vatsavaya Raju, Susan Holmes.*** *Not pictured:* ***Joan Nowicke.***

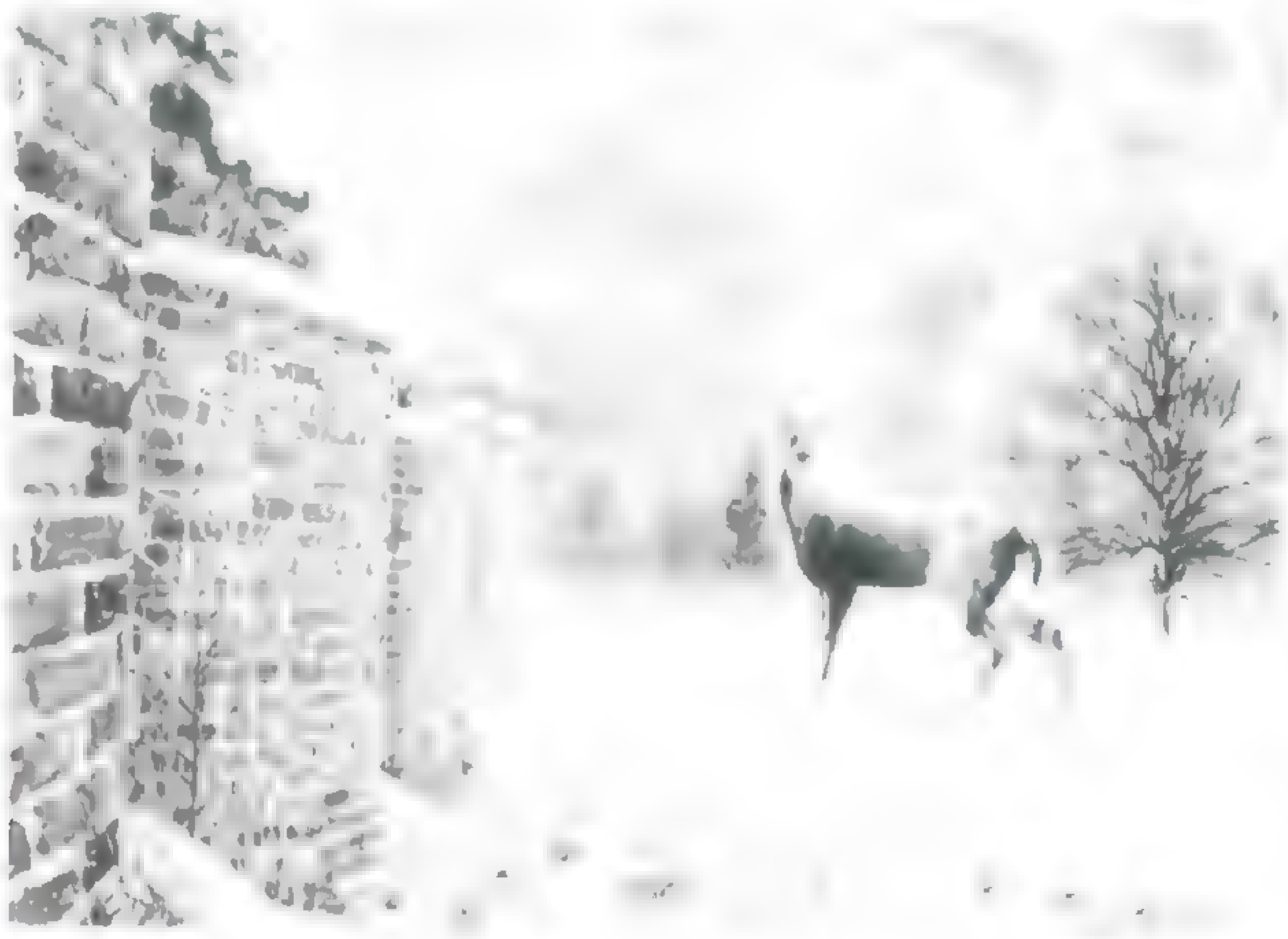
Senior Tanzanian Botanist Visits Garden

Professor Feetham Banyikwa from Tanzania visited the Garden at the beginning of September in connection with the National Cancer Institute's collecting program which has been taking place in Tanzania over the last year. Professor Banyikwa is the head of the Department of Botany at the University of Dar-es-Salaam, in addition to being chairman of the National Committee that co-ordinates research in Tanzania. He also serves as chairman of the Board of Trustees of the Serengeti Wildlife Research Institute.

From the Garden Gate Shop

Celebrate National Children's Book Week November 13-19

Celebrating Children's Book Week and the holiday season, the Garden Gate Shop will offer an extra five percent discount on children's books for all Members and MoBots. In addition, the Shop will offer the regular ten percent Members' discount to MoBots for this week only. Children can do their holiday shopping in a special section with gifts priced under $10.



1989 Holiday card

1989 Holiday Card

This year's holiday greeting card features a winter scene of the Shaw Arboretum created by St. Louis artist Dhimitri Zonia. Cards can be purchased with no message, or with the greeting "Peace and Joy in the New Year". A package of ten Garden holiday cards and envelopes is $8.95.

Annual Holiday Preview Sale

Wednesday, Thursday, and Friday
November 1, 2, and 3
9 a.m. to 7:30 p.m.

Your holiday shopping can get off to an early start with the Garden Gate Shop's annual sale, where Members receive 20 percent off on all gifts and plants. Holiday gifts and decorations, tree ornaments, Garden calendars, books, gardening tools and accessories will be featured.

December Plant Sale

Thursday and Friday, December 7 and 8, 9 a.m. to 7:30 p.m.
Saturday, December 9, 9 a.m. to 5 p.m.

Find the perfect gift for every last-minute item on your holiday list. Poinsettias, cyclamens, bulb kits, bird feeders, wind chimes, sundials, and a glorious variety of charming accessories for the home and garden will be available. Members receive 20 percent off all merchandise throughout the sale.

"Hidden Wealth" Means Hope for Rain Forests

A recent study on the economics of sustainable harvests from rain forests has attracted wide attention by suggesting that it is much more profitable to keep the forests intact. The study, by a team including Garden curator Alwyn Gentry, Robert Mendelsohn of Yale University, and Charles Peters of the Institute of Economic Botany at the New York Botanical Garden, was published June 29 in *Nature*, and subsequently featured on the front page of *The Washington Post* and in *Science* magazine.

Gentry and his colleagues estimated the value of a hectare of Amazonian rain forest near Iquitos, Peru, by analyzing the market value for the rich diversity of fruits, oils, rubber and medicines from the plants on the site. Including the costs of harvesting and bringing the products to market, the researchers concluded that the hectare would yield an annual income of $422 in fruit and rubber alone. They calculated the net present value of the hectare as $6,820, taking into account the cumulative value of all future harvests for 50 years.

In comparison, a tree plantation of the same size would be worth $3,184; pastureland would be worth $2,960. Clear-cutting the hectare for its timber would yield only $1,000, a one-time revenue, and would ruin the acreage for future use.

This is exciting news for conservationists. "The forests must be used in order to be saved," said Charles Peters. "There is no future in simply setting aside land . . . in the Third World."

The Garden has been a leader in working with officials in developing countries to find ways to preserve natural resources while encouraging economic growth. The results of this study provide fresh hope in the effort to save the world's rain forests.

Henry Shaw Academy News

The Henry Shaw Academy (HSA) offers students aged seven and older exciting and creative ways to investigate topics in science, ecology and natural history. Academy students pay an application fee which includes free Garden admission for a year and entitles them to participate in seasonal classes held at the Garden, Shaw Arboretum and local parks. Classes are held on Saturdays and weekdays after school. MoBot members are eligible to apply to take HSA courses at a reduced fee.

Summer Science Camp

The Henry Shaw Academy completed its second successful year with a summer-long Science Camp for students who are interested in science, natural history and outdoor studies. The Science Camp focuses on providing opportunities for students to gain 'hands-on' experiences in a variety of science classes, outdoor 'field' programs, overnight and extended camping field trips. Teachers, counselors and experienced outdoor educators use the Garden's Shaw Arboretum, greenhouses, facilities and knowledgeable staff as well as local parks and rivers to provide unique programs and classes.

Fall-Winter Classes

The academy has expanded its course offerings this fall (September-December) and winter (January-February) to include after-school programs: The World Through a Microscope; Tropical Rain Forest Discoveries; Make a Nature Video; Creating Personal Herbariums; Botanical Illustration; Plants for People; Developing Discovery Skills; and more. Unique and varied subjects are taught in full and half-day Saturday classes. This winter's classes will include Maple Syrup Making at the Arboretum, Cave Explorations, Tropical Rain Forest Plants, Secrets of the Winter Forest, and Plant Propagation.

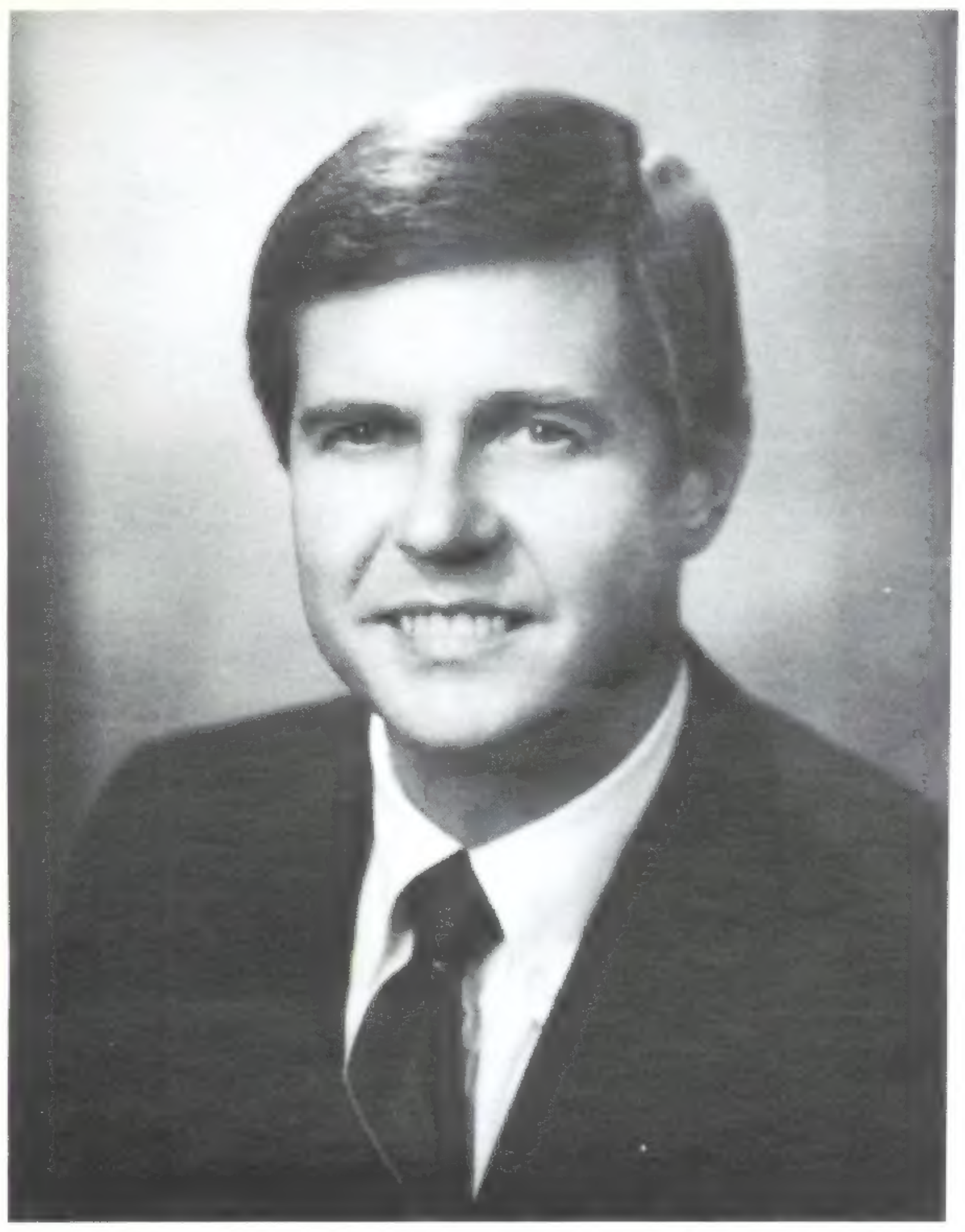
There are still openings for winter classes and some fall classes. For more information call 577-5135 or 577-5140.

Moving? Please Remember To Send Us Your New Address.

To avoid missing any of your membership mailings, you *must* give us your new address at least three weeks *before* you move. Please enclose the mailing label on the back cover of this *Bulletin*, and mail to: Membership Office, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166.

Behind the Scenes

Garden Names New Controller


Michael S. Olson

Michael S. Olson has been appointed controller of the Missouri Botanical Garden effective August 22, 1989. As controller, Olson is the Garden's chief financial officer. Working with the Trustees, Director's Office, and Garden departments, Olson is responsible for planning and administering the Garden's operating and capital budgets, investments, and other financial concerns, such as insurance. The controller traditionally serves as the secretary of the Board of Trustees, and Olson was elected to this office at the centennial meeting of the Board on September 20.

Olson joins the Garden after serving as corporate controller for the HBE Corporation, where he worked since 1986. From 1980 to 1986 he was senior accountant at Topping, Gianotti, Payne and Groskreutz in Kankakee, Illinois. Olson also has extensive experience in the not-for-profit sector. A graduate of Northern Illinois University, he is a certified public accountant, licensed in Missouri and Illinois.

"We are delighted to have Mike with us," said Dr. Marshall R. Crosby, assistant director. "The Missouri Botanical Garden is a financially complex place, with revenues derived from many sources, and expenditures in many areas to support our educational, horticultural, and display activities. Mike's previous experience suits him ideally for this position, and his long-time interest in natural history and the environment will serve him well as he becomes familiar with our programs and, we hope, a spokesperson for them."

Tributes

JULY - AUGUST 1989

In Honor Of:

Mrs. Faye Beth Baer
Mr. S. Charles Baer
Mrs. Henry L. Freund
Mrs. Robin Barnes
Mr. and Mrs. A. Charles Roland III
Mr. James T. Barry
Miss Margaret O'Brien
Mrs. Hilda R. Becker
Mr. Joe Roth
Andrew Benkendorf
Mr. and Mrs. Phillip Schreiber
Edie Binder
Mr. and Mrs. Herbert M. Talcoff
Mr. and Mrs. Daniel Bindler
Mr. and Mrs. Phillip Schreiber
Dr. Subir K. Bose
Dr. Evangelia Vretou
Mrs. Maria J. Weingartner
Robert Bowden
Mr. and Mrs. Theodore P. Desloge Jr.
Mr. and Mrs. Jack Broemmelsick
Dr. Helen M. Aff-Drum
Mr. and Mrs. Marvin Burstein
Mr. and Mrs. Phillip Schreiber
Mr. and Mrs. Arthur Carlson
Mr. and Mrs. Frank W. Miller
Mr. and Mrs. Powell Niland
Mrs. Ann Case
Mrs. Richard J. George
Mr. and Mrs. Sanford Comensky
Mr. and Mrs. Bernard H. Sirkin
Mrs. Barbara Z. Cook
Mr. Harold S. Cook
Mrs. Joan Cornblath
Dr. and Mrs. David M. Kipnis
Mr. and Mrs. Francis Davis
Mr. and Mrs. Arthur F. Boettcher Jr.
Mr. Theodore P. Desloge Jr.
Mr. and Mrs. Walter G. Stern
Mrs. Ruth Dierkes
Mark and Michael Raming
Mr. and Mrs. Stephen Whittall
Mrs. Mary Drey
Mrs. Henry L. Freund
Myra Dubinsky
Mrs. Henry L. Freund
David and Jacline Edwards
Mr. and Mrs. Robert Ottum
Mr. Aaron Fischer
Mrs. Samuel D. Soule
Mrs. Rosemary Flance
Mr. and Mrs. Lester R. Adelson
Mr. S. E. Freund
Mr. and Mrs. Robert N. Schulte
Mr. Richard E. Turner
Mr. and Mrs. Edgar Froehlich
Miss Gerry Barnholtz
Miss Marian Barnholtz
Dr. Bernard T. Garfinkel
Mr. and Mrs. Alfred E. Goldman
Mr. and Mrs. Paul Gelner
Mr. and Mrs. Robert E. Koehr
Mr. Fred Goldberg
Mrs. Peggy R. Hellman
Mr. and Mrs. Peter H. Husch
Grass Roots Garden Club
Mrs. Paula Kipnis
Mr. and Mrs. Eugene Harris
Mrs. Blanche J. Freed
Mr. Dwight Hatcher
The Govenor French Academy, Inc.
Dr. John E. Helzer
Ms. Linda B. Salamon
Helen Jean Heyman
Mr. and Mrs. Herbert M. Talcoff
Dr. Ira Kodner
Mr. and Mrs. Blanton Whitmire
Mr. and Mrs. Ralph Landry
Mr. and Mrs. Norman Schute
Mr. Morris J. Levin
Mr. and Mrs. Nathan B. Kaufman
Mrs. Marian Jeane Lewin
Mrs. Rose Floret
Mrs. James S. McDonnell
Mrs. Howard H. Hubbell
Mr. and Mrs. James I. Meadows Jr.
Mrs. Virginia M. Epstein
Mrs. Jeanne Milder
Mr. and Mrs. Lester R. Adelson
Marilyn and Joel Monson
Harriot and Parker Smith
Mrs. Sis Newmark
Mr. and Mrs. Albert Gerber
Mr. Kenneth Nickel
Les and Ruth Lottmann
Syl and Lou Schomaker
Robert and Maryan Noe
Mrs. Toni Tower
Mrs. Carl Otto
Mrs. Charles W. Lorenz
Mr. and Mrs. Chuck Parnes
Mr. and Mrs. Donald Witt
Mrs. Viola Paul
Mrs. Jane Bartels
Mr. and Mrs. Vernon W. Piper
Mrs. John W. Calhoun
Mr. and Mrs. Stanley L. Lopata
Lydia Plattenburg
Edward Mower
Harriot and Parker Smith
Mrs. Leon Rittenberg
Mr. and Mrs. Robert L. Rosenheim
Mr. and Mrs. William Roller
Dr. Harry S. Mendelsohn
Mr. and Mrs. Alan Ross
Mr. and Mrs. Lester R. Adelson
Mr. Joseph Rothberg
Mr. and Mrs. Stanley N. Hollander
Mr. and Mrs. Alfred Saxdal
Husni and Nadia Alul
Mrs. Marie P. Cook
Rose Marotta
Robert and Mary Mudd
Mrs. William H. Schield
Grace Schillinger
Tony and Colleen Shen
Angelo and Carolyn Vassallo
Mr. Nicholas Scharff
Mr. and Mrs. S. I. Rothschild Jr.
Mrs. Elsie Scherck
Mr. and Mrs. S. I. Rothschild Jr.
Mr. and Mrs. Wm. Schliebe
Mr. and Mrs. Ervin G. Rott
Mr. Harry Schloss
Mr. and Mrs. Myron Glassberg
Dr. Burton Shatz
Mr. and Mrs. Samuel Goldberg
Mr. and Mrs. Menlo Smith
Mrs. Raymond E. Lange
Mr. Mitchell Sonn
Mr. and Mrs. Harold N. Kravin
Mrs. Selma Soule
Dr. and Mrs. Harold M. Cutler
Dr. and Mrs. David M. Kipnis
Mrs. Herbert S. Schiele
Mrs. Jenny N. Strauss
Wayne Spann
Tad Hamilton
Mr and Mrs. Howard Elzemeyer
Mrs. George S. Metcalfe
Mr. and Mrs. James Metcalfe
Mr. Art Spitzfaden
Mr. and Mrs. Wayne Bennetsen
Miss Jamie Stern
Mr. and Mrs. Richard Halpern

continued on next page

Tributes

continued

Mr. and Mrs. Henry Stolar
Mr. and Mrs. Vincent C. Schoemehl Jr.

Eleanor Strassner
Mrs. Henry L. Freund

Mr. Jay D. Straus
Mrs. Henry L. Freund

Mr. and Mrs. Harold M. Stuhl
Mr. and Mrs. Walter G. Stern

Mrs. Marjorie Maddox Tooker
Mr. William Pagenstecher

Mr. John K. Wallace Jr.
Mr. and Mrs. Bruce R. Yoder

Brian Ward
Mr. and Mrs. Theodore P. Desloge Jr.

Mrs. Minna Brecher Wayne
Mrs. Henry L. Freund

Mrs. Patsy Weintraub
Miss Evelyn Shapiro

Mr. and Mrs. Maurice Wood
Mr. and Mrs. Roy Weisheit

Mrs. Susie Yoder
Toni Breihan
Judy Luepke

In Memory Of:

Dr. Oliver Abel III
Dr. and Mrs. Charles Abel and Family
Martha Bennett Abel
Mr. and Mrs. Richard G. Abell
Dr. and Mrs. Arthur I. Auer
Mae and Joan Been
Mr. and Mrs. Frank O. Bittner III
Mr. and Mrs. Allen M. Borucke
Mr. and Mrs. Milt Burmaster
The Buzzotta Family
Dr. and Mrs. M. Richard Carlin
Mrs. Gerome Chambers
Mr. and Mrs. R. B. Clark III
Mr. and Mrs. William A. Clark
Mr. and Mrs. Charles J. Cook
Mrs. John L. Davidson Jr.
Mrs. Selma S. Dennis
Dr. and Mrs. James L. Donahoe
Joan and Ben Edwards
Mr. and Mrs. Steve Erakovich
Dr. and Mrs. William M. Fogarty Jr.
Mrs. Townsend Foster
Mr. and Mrs. Arnold M. Goldman
Dr. and Mrs. Fleming B. Harper
Mrs. Joseph H. Harper
Mr. and Mrs. Robert H. Harper
Andrea Herrick and Family
Mr. and Mrs. Albert J. Hitt
Mr. and Mrs. Brooke Hoey
Mr. and Mrs. Clinton U. Imboden
Dr. and Mrs. Leonard Juarraia
Dr. and Mrs. David M. Kipnis
Mrs. Frank G. Kirtz
Robert and Edna Wetterau Kroening
Mr. and Mrs. Gerald T. Lawlor
Mr. and Mrs. Frank B. Lawton
Mr. Gary Manoogian
Mr. and Mrs. Herbert W. Markwort
Mrs. Carolyn C. Martin
Mrs. Winifred H. Martin III
Mr. and Mrs. James J. McKenna
Dr. and Mrs. Edward J. Miller
Missouri Botanical Garden Guides
Missouri Botanical Garden Volunteer/Instructors
Mr. and Mrs. George P. Mueller
Mr. and Mrs. Michael N. Newmark
Mr. and Mrs. Charles W. Oertli
Dr. and Mrs. Henry Onken
Mr. and Mrs. Thomas A. Parshudie
The Glenn Patton Family
Mrs. Jane K. Pelton
Mrs. Vina Petelle
The Mike Rayburn Family
Judith and Michelle Rosen
Mr. and Mrs. John S. Ross
Dr. Robert K. Royce
St. Louis Herb Society
Mr. Thomas Shocklin
Harriot and Parker Smith
Mrs. Donald Strominger
Mr. and Mrs. Clarence A. Sweets
Dr. and Mrs. Bryant Thompson
Mr. and Mrs. P. Robyn Tobin
Dr. and Mrs. Robert Vanderpearl
Mr. and Mrs. Frank E. Vigus
Mr. and Mrs. Harry L. Weier
Mr. and Mrs. Bruce R. Yoder

Mr. Floyd Ahrens
Mr. and Mrs. Eugene F. Padgitt

Mrs. Enid Altvater
Mr. and Mrs. William A. Frank
Mr. and Mrs. William J. Hormberg
Mr. and Mrs. Edward D. Jones
Mr. and Mrs. Frederick R. Keydel

Mrs. Lorene Anderson
Mr. and Mrs. Robert D. Moore

Mr. John A. Anton
Mr. and Mrs. Ronald G. Mueller

Mrs. Jane Baer
Mr. and Mrs. David Norr

Miss Margaret Bargeon
Miss Norma C. Kissner

Mr. William Barnes
Mr. and Mrs. John K. Lilly

Mr. Elmer Bartmann
Mrs. Lorine Ruhl

Helen Bemis
Mr. and Mrs. P. Scott King and Family

Christopher Biraben
Mrs. Jane A. Jacobs

Mrs. Dorothy Birk
Mr. and Mrs. Erwin R. Breihan

Mr. Robert H. Blastenbrei
Mr. and Mrs. Jack A. Blake

Florence Bloch
Mr. and Mrs. Herbert M. Talcoff

Mr. William G. Bock
Mr. and Mrs. Lewis E. Bock
Mrs. Opal L. Bosse

Esther Bortscheller
Karl and Cynthia Wolf

Mrs. Anna Breading
Mrs. Robert A. Humber
Mrs. Betty V. Schramm
Ms. Lynn K. Silence

Esther Brothers
Dr. and Mrs. George E. Mendelsohn

Mr. Otis F. Bryan
Mr. Robert Blackburn
Mr. and Mrs. Robert H. Salisbury

Mrs. Mary Soulard Bull
Mrs. Fred H. Krug
Mrs. Gilbert T. Miller

Mrs. Edith Campbell
Mrs. E. W. Kaiser
Mrs. Georgia D. Schwartz

Mrs. Loretta Cannady
Ms. Kelly J. Fitzgerald and Lauren

Esther Carlson
Arline Fischer

Mr. J. Kehlor Carr
Mr. and Mrs. Donald A. Peterson

Mrs. Helen Castaldi
Miss Alma D. Simms
Miss Myra Simms

Mr. Ed Cochran
Mr. and Mrs. Jack A. Blake

Kathleen Conlon
Mr. and Mrs. Charles O. Hermann

Mrs. Elizabeth Conrad
Mrs. George W. Skinner

Mrs. Emily Cronheim
Dr. and Mrs. Llewellyn Sale Jr.

Mr. John Francis Cruise
Mr. George R. Durnell

Gerty Dellert
Mr. and Mrs. Robert S. Weinstock

Mr. Anthony J. Dietz
Mr. and Mrs. Tom Dietz

Mr. Ray Eder
Mr. and Mrs. Lester R. Adelson
Mr. Jack Ansehl
Mrs. Laura Mae Cassel
Mr. and Mrs. Stephen C. Smith

Mrs. James H. Endres
Mrs. George W. Skinner

Parents of Sallie Ervin
Miss Dorothy Kohler
Miss May A. Kohler

Mr. Barrett Evans
Mr. and Mrs. Phillip Schreiber

Miss Lorine Fader
Mrs. Helen E. Fitzroy

Amy L. Fallen
Her Children

Newborn Son Jack Fitzgerald
Elizabeth Jewell Fitzgerald
Martin Fitzgerald

The above memorial was misspelled in the September Bulletin. *We regret the error.*

Dr. Raymond P. Freeborg
Mr. and Mrs. C. J. Maurer
Mr. and Mrs. John A. Maurer
Nina Russo
Nancy M. Zimmerman

Mrs. Adlyne Freund
Mr. and Mrs. Van-Lear Black III
Dr. and Mrs. Gunter Schmidt
Antonia Buder Wiegand
Dr. Herbert Charles Wiegand

David Friedlander
Mr. and Mrs. Herbert M. Talcoff

Frieda Frillman
Mr. and Mrs. Thomas Frillman

Mr. Carl B. Giebel
Mr. and Mrs. Donald F. Barr

Mrs. Mary Lee Gittins
Mr. and Mrs. Richard H. Palmer

Mrs. Ella Goodhead
Mrs. Clara LaVoise

Faye Greenberg
Mr. and Mrs. Herbert M. Talcoff

Mrs. Etta Gudehus
Mr. and Mrs. Philip M. Craig

Mr. Theodore Guhman
Mr. and Mrs. Robert B. Forbes

Mr. Walter E. Gustafson
Mr. and Mrs. Robert D. Till

Miss Martha Hadley
Mrs. Rosemary Jerden and Family
Mr. Ronald Kohn
Ms. Barbara Sloan
Mr. and Mrs. George B. Sloan
Mr. George B. Sloan Jr.
Mr. and Mrs. Ernest B. West

Sonny Hahs
Mrs. Ora Hahs Dickemann

Mr. Norman Winston Halls
Mr. and Mrs. Henry Hitchcock
Mrs. James S. McDonnell Jr.
Mr. and Mrs. Sherman C. Parker
Mr. and Mrs. W. Winston Rodormer
Mrs. A. Wessel Shapleigh
Mr. and Mrs. J. Kennard Streett

Miss Edith L. Hammond
Miss Bess J. Corn

Mrs. George Harrigan
Mrs. Warren C. Bruce

Mrs. Irene C. Hess
Miss Marian A. Marquard

Mrs. Virginia Higgins
David D. Stokes Family

Mrs. Freda L. Hight
Mr. and Mrs. Tom Shiff

Mrs. Mildred Hubbard
Mrs. Nancy R. Burke
Mr. and Mrs. William C. Lortz

Mother of Iris
Mr. and Mrs. John R. Gannett

Mrs. Edna Jokerst
Ms. Lynn K. Silence

Mr. Rich Keller
Mr. and Mrs. Wayne Jordan

Mr. B. F. King
Mr. and Mrs. Oscar P. Hampton III

Mrs. Helen Kletzker
Mr. and Mrs. H. Ivis Johnston

Mr. Russell A. Knight
Mr. and Mrs. Alfred L. Poertner

Mother of Elke Koch
Mr. and Mrs. Erwin R. Breihan

Mrs. Elva H. Koch
Dr. and Mrs. Robert R. Anschuetz
Mrs. Russell J. Crider
Hempstead Family
Ladue Garden Club
Dr. and Mrs. John S. Skinner

Ida Lapidus
Mr. and Mrs. Phillip Schreiber

Mrs. Louise E. LaTurno
Mr. and Mrs. Clifford W. Murphy

Mr. Otis D. Lovell
Mr. and Mrs. Robert H. Harper

Dr. Thomas O. Lyles
Ms. Barbara K. Baker
Dr. and Mrs. Julian W. Buser
Ms. Carrie Butler
Dr. and Mrs. M. Richard Carlin
Ms. Diane M. Cune
Ms. Sharon R. Currie
Mr. and Mrs. Jerome P. Dundon
Dr. and Mrs. Arthur H. Gale

Ms. Velva R. Haven
Mr. Don F. Hilleshem
Ms. Wanda F. Kimberly
Mr. David Malone
Ms. Anita M. McDonald
Michael L. Moneer
Mr. and Mrs. Earnest Park
Dr. Robert K. Royce
St. Clair County Medical Society
Dr. and Mrs. Brillante Santillan
Linda Sher
Mrs. Velma Sutton
Mr. and Mrs. Aaron D. Turner

Mrs. Rosalind Maas
Mr. Harold S. Cook

Beryl Manne
Her Loving Children

Mr. Elbert E. Marschel
Botz, Deal & Company, P.C.
Mrs. John Kilkenny
Mrs. Melanie M. Martin
Mr. and Mrs. Thomas E. Rice
Suburban Journals

Mr. Webster Martin
Mr. and Mrs. Dean H. Kropp

Mr. Charles Mayer
Mrs. Gerome Chambers
Missouri Botanical Garden—Volunteer/Instructors

Mrs. J. Spencer McCourtney
Mr. and Mrs. J. Marion Engler

Mrs. Ellen McLiney
Mr. and Mrs. Alphonse F. Dames Jr.

Maj. Gen. and Mrs. Walter I. Miller
Mrs. Arden M. Fisher

Mr. Fred Minnigerode
Mr. David Fox

Mrs. John Morfit
Mrs. H. M. Engelhorn

Mr. Leo G. Noblot
Mr. and Mrs. Dennis Swinford

Judy Northington
Abasy International Investments, Inc.
Patti Alexander
Broadway Oyster Bar
Sharon Cody
Richard Pollock
Joan Thomas
David Udell

Mr. Charles Orner
Arthur Andersen & Co.
Mr. Stephen B. Berberich
Mr. Stephen A. Elliott
Mr. Ronald J. Kanterman
Mr. and Mrs. Michael G. McGrath
Mr. and Mrs. O. Paul Reinert
Mr. and Mrs. John R. Roberts
Mr. Stanley R. West

Mrs. Harry E. Papin Jr.
Mrs. Alexander M. Bakewell

Mrs. Marye Parsons
Mrs. Dorothy Dwyer

Mr. Dionisio Pasia
Mrs. Wesley E. Hayek

Miriam M. Pfeffle
Dotzauer & Runde
Mrs. Myrtle E. Taus

Mr. Henry B. Pflager II
Mr. and Mrs. I. A. Long
Mr. and Mrs. James F. Mauze

Helen Phelan
Mr. and Mrs. Gerald Grommet

Mr. William Phillips
Bridgeton Kiwanis Club
Mr. and Mrs. David V. Jozwiak
Mr. M. David Tayabji

Mr. Larry J. Pirio
Mrs. Edith M. Alesch
Cheryl Benjamin
Miss Wauneta Booth
Mrs. Gerome Chambers
Mrs. Martin Cliffe
Jill Gordon
Georgette Henry
Sue Hooker
Mrs. Susane Kinney
Mrs. H. A. LaBarr
Cissy Lacks
Mrs. R. Jeanne McGilligan
Mercy Ambulance Service, Inc.
Olga H. Pirio
Joyce Rich
Lois Severin
Sigma Chemical Company-Microbiology Dept.
Sigma Chemical Company-Packaging Dept.
Della Sprehe
Mrs. C. L. Washburne
June Zotti

Mr. Philo John Rapp
Dr. and Mrs. Stephen F. Bowen Jr.
Miss Dolores J. Courtney
Mr. and Mrs. Derick Driemeyer
Dennis C. Dunaway
Sharon C. Dunaway
Mr. and Mrs. Bruce English
Mr. and Mrs. Richard J. George
Sandra and Darrell Ingram
Employees of McDonnell Douglas, Dept. 761
Employees of McDonnell Douglas, Dept. 761—St. Charles
Dr. and Mrs. Joseph K. McKinney
Mrs. Ralph W. Morrison
Mrs. Daniel J. Pacey
Dr. and Mrs. William H. Sheffield
Mrs. Joseph K. Walker
Mrs. Thomas L. Yount

Mrs. Gladys Remme
Mr. and Mrs. Erwin R. Breihan
Mrs. Dwight W. Coultas
Mrs. Norma M. Silber

Mr. Bertram Richardson
Dr. and Mrs. Robert S. Cornwell

Mrs. Ethel Rosenberg
Ms. Emmy Behrens

Mrs. Rita Rosenblum
Mr. and Mrs. Myron Glassberg
Mr. and Mrs. Jerome M. Steiner

Mrs. Irene C. Ross
Miss Helen Novak

Mrs. Julian G. Samuels
Mrs. Helen C. Maurer

Col. William F. Schless
Virginia Senkosky

Mrs. Henriette Schotten
Miss Marjorie Stauss

Mrs. Mathilda K. Schueren
Miss Lynda Stair

Mrs. Dora Schulz
Mr. and Mrs. William Dorr Sr.

Mr. Wm. D. Serbi
Mrs. William Belcher
Mr. and Mrs. James A. Bilhorn
Mr. and Mrs. John Dinga
Mr. and Mrs. Theodore E. Knickmeyer
Mr. and Mrs. W. O. McConnell
Mr. and Mrs. Tom McSorley
Modes Benefits Section
Modes UI Data Processing

Mrs. Earl Shepard
Mr. and Mrs. Joseph Hunter

Mr. George Shoji
Mr. and Mrs. Nabeshima
Mrs. Kay Shoji

Mr. Fred L. Spencer
Mrs. Margaret McCormick

Mr. Paul Stark Jr.
Mrs. Lewis W. Baldwin Jr.
Mrs. William Bixby Jr.
Dr. and Mrs. James T. Chamness
Mr. and Mrs. William R. Orthwein Jr.
Mrs. A. Timon Primm III
Dr. and Mrs. Peter H. Raven
Mr. and Mrs. Edwin G. Russell
Mr. and Mrs. Henry T. Schlapp
Mrs. A. Wessel Shapleigh
Mr. and Mrs. Frank A. Thompson Jr.
Mr. and Mrs. John S. Wagner

Sarah Steinman
Mr. and Mrs. Anton M. Kochan

Mrs. George Stewart
Mr. and Mrs. Peter H. Husch
Dr. and Mrs. Llewellyn Sale Jr.

Mr. Saul Sussman
Mrs. Harry Agress
Mr. John E. Reid
Mr. and Mrs. Joseph F. Ruwitch

Marie J. Tanner
Bob and Sue Madden

Mr. Kurt Thurmann
The Manfred Thurmann Family

Mrs. Bettye Thurmond
Mr. and Mrs. Anthony Cuneo
Mr. and Mrs. Edwin Ellston
Mr. and Mrs. George B. Hagee
Mayor and Board of Aldermen-City of Clayton
Mr. Hugh Scott III

Dr. Joseph W. Towle
Mrs. Robert H. Kittner
Dr. and Mrs. Roy W. Osterkamp

Mr. Wilbur Trueblood Jr.
The Belz Family
Mrs. Townsend Foster
Dr. and Mrs. A. C. Trueblood Jr.

Raymond A. Wadsack Jr.
Mrs. Sue E. Wadsack and Jessica

Dr. Adam C. Walther
Mildred Guggenbuehler
Miss Norma C. Kissner
Mr. and Mrs. John S. Ross

Mr. Roger J. Wenzel
Mrs. R. Bentzinger
Rev. and Mrs. Wilbert Burmeister
Mrs. Joan Corwin
Mr. and Mrs. Donald E. Svoboda

Mrs. Alma White
Mr. and Mrs. Robert E. Power

Joni Wolf
Mr. and Mrs. Brent Stansen

Mr. Frank Wolff Sr.
Mr. and Mrs. Joseph O. Losos
Mr. and Mrs. Alexander Schonwald

Rev. David O. Wright
Mr. and Mrs. Clifford W. Murphy

Board of Trustees

Mr. Robert E. Kresko
President

Dr. Marguerite Ross Barnett
Rev. Lawrence Biondi, S.J.
Mr. Gerald D. Blatherwick
Mr. Stephen F. Brauer
Mr. William H. T. Bush
Mr. Jules D. Campbell
Dr. William H. Danforth
Mr. Samuel B. Hayes
Mr. Robert R. Hermann
Rt. Rev. William A. Jones, Jr.
Mr. David W. Kemper
Mr. Charles F. Knight
Mr. William E. Maritz
Mr. James S. McDonnell III
The Hon. Gene McNary
Mr. Lucius B. Morse III
Mrs. Fred A. Oberheide
Mr. William R. Orthwein, Jr.
Mrs. Vernon W. Piper
Mrs. Lucianna Gladney Ross
Dr. Howard A. Schneiderman
The Hon. Vincent C. Schoemehl, Jr.
Mr. Sydney M. Shoenberg, Jr.
Mr. C. C. Johnson Spink
Mrs. Walter G. Stern
Mr. Andrew C. Taylor
Dr. Joyce M. Thomas
Mr. John K. Wallace, Jr.
Mr. O. Sage Wightman III

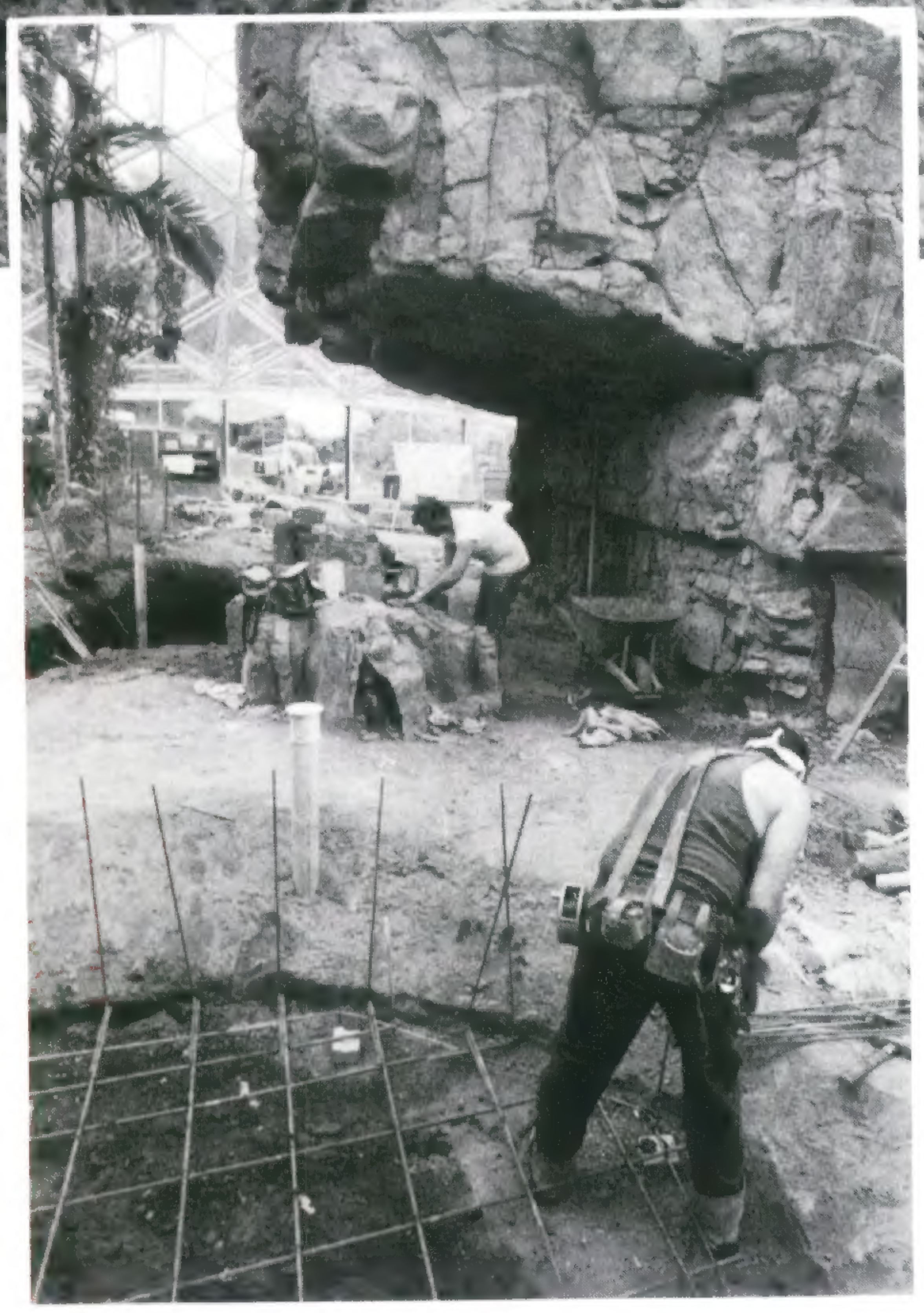
EMERITUS TRUSTEES
Mr. Howard F. Baer
Mr. Clarence C. Barksdale
Mr. Joseph H. Bascom
Mr. John H. Biggs
Mr. Sam'l C. Davis
Dr. Thomas S. Hall
Mr. Henry Hitchcock
Mrs. Anne L. Lehmann
Mr. Joseph F. Ruwitch
Mr. Louis S. Sachs
Mr. Daniel L. Schlafly
Mr. Warren M. Shapleigh
Mr. Robert Brookings Smith
Mr. Tom K. Smith, Jr.
Mrs. Harriet Spoehrer
Mr. Harry E. Wuertenbaecher, Jr.

HONORARY TRUSTEES
Dr. Mildred Mathias
Prof. Phillippe Morat

DIRECTOR
Dr. Peter H. Raven

MEMBERS' BOARD
Mrs. Henry W. Dubinsky
President

Mrs. Rudyard K. Rapp
Mrs. Antonio I. Longrais
Mrs. Robert J. Senkosky
Mr. Frederick H. Atwood III



SNEAK PREVIEW!

See Climatron Construction in Progress

During the first weekend of the Fall Flower Show, Garden visitors will be able to tour the Climatron and see the renovation work in progress. The Climatron will be open to Members during Thursday's Premiere and Friday's Preview. It will be open to the public from 9:00 a.m. to 5:00 p.m. Saturday and Sunday, November 4 and 5. Docents will be on hand in the Climatron to answer questions throughout the Members' evenings and from 11 a.m. to 2 p.m. on Saturday and Sunday. Don't miss this exclusive opportunity to see the first stages of many exciting exhibits!

MISSOURI BOTANICAL GARDEN BULLETIN (ISSN-0026-6507)
P.O. Box 299
Saint Louis, Missouri 63166

SECOND CLASS
POSTAGE
PAID
AT ST. LOUIS, MO

CENTENNIAL
Board of Trustees
1889 1989
Missouri Botanical Garden